

Boardman to Hemingway Transmission Line Project

Compensatory Wetland and Non-Wetland Mitigation Plan

Prepared for:



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ACRONYMS

ASC	Application for Site Certificate
CWNWMP	Compensatory Wetland and Non-Wetland Mitigation Plan
DSL	Oregon Department of State Lands
ESA	Endangered Species Act
GRMW	Grande Ronde Model Watershed
HGM	hydrogeomorphic
HMS	Hassinger Mitigation Site
HUC	Hydrologic Unit Code
IPC	Idaho Power Company
JPA	Joint Permit Application
ODOE	Oregon Department of Energy
ORWAP	Oregon Rapid Wetland Assessment Protocol
PEM	Palustrine Emergent
PFO	Palustrine Forested
PSS	Palustrine Scrub-Shrub
Project	Boardman to Hemingway Transmission Line Project
USACE	U.S. Army Corps of Engineers

1.0 COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN OVERVIEW

1.1 Introduction and Background

Idaho Power Company (IPC) proposes to construct the Boardman to Hemingway Transmission Line Project (Project). In Oregon, Project will extend 296.6 miles from near Boardman, in Morrow County, Oregon, to the vicinity of the City of Nyssa, in Malheur County, Idaho. The Oregon portion of the Project is 270.8 miles in length. As described in detail in IPC's Application for Site Certificate (ASC) to the Oregon Energy Facility Siting Council, IPC anticipates small-scale wetland and non-wetland impacts from the Project across various wetland and waterway types, and in a number of hydrologic units. IPC is preparing a Joint Permit Application (JPA) for submission to the Oregon Department of State Lands (DSL) and the U.S. Army Corps of Engineers (USACE) to obtain removal/fill permits for impacts to wetland and non-wetland features associated with the Project.

The Project is anticipated to permanently impact approximately 3.05 acres of wetlands at 118 locations, and 14,533 linear feet (1.68 acres) of stream frontage at 457 locations. A summary of the wetland and non-wetland impact sites is provided in Appendix A.

See Figure 1, Location and Vicinity Maps; Figure 2, Tax Lot Map; Figure 3, Aerial Photograph; Figure 4, Site Photographs; and Figure 5, Oregon Rapid Wetland Assessment Protocol (ORWAP) Sites Location Map.

1.2 Description of Compensatory Wetland and Non-Wetland Mitigation Plan

The purpose of this Compensatory Wetland and Non-Wetland Mitigation Plan (CWNWMP) is to provide mitigation for wetland and non-wetland impacts, which will occur at various sites along the Project's Proposed Route, through the creation of similar functioning wetlands and enhancement of existing wetlands at a single mitigation site in Union County, Oregon, referred to as the Hassinger Mitigation Site (HMS). A portion of the HMS area will be graded to increase hydrologic connectivity with Catherine Creek, covered with topsoil, seeded, and planted with native wetland species such as grasses, sedges, rushes, and woody wetland/riparian species adapted to site physical properties, soils, and hydrologic conditions.

Non-wetland habitat will be enhanced by constructing a high flow side channel between Catherine Creek and the existing oxbow located adjacent to the new wetlands, and by installing wood habitat structures in the oxbow. The side channel will allow for increased flow into the oxbow and will provide an off-channel velocity refuge during high flows, while the woody material structures will create additional fish habitat. The entire 8.54 acres will be protected from grazing and farming under a conservation easement.

1.3 Ecological Goals and Objectives

The HMS encompasses approximately 8.54 acres adjacent to Catherine Creek in Union County, Oregon (see Figure 1, Location and Vicinity Maps). The HMS will involve creation of approximately 4.76 acres of seasonally flooded wetland habitat immediately adjacent to 1,080 linear feet of Catherine Creek, enhancement of 1.51 acres of existing wetland habitat, and construction of 810 linear feet of side channel that will provide an additional intermittent connection between Catherine Creek and the oxbow. Four woody debris structures will be

strategically located and constructed along approximately 432 feet of the existing oxbow to provide instream fish habitat.

The HMS will increase local wetland and non-wetland habitat, giving 3.66 acres of wetland mitigation credit and 2,322 linear feet (0.90 acres) of stream mitigation credit. These habitats are critical to many wetland and freshwater aquatic species, including Endangered Species Act (ESA)-listed spring Chinook salmon, summer steelhead, and bull trout that utilize the channel at various stages of their life cycles. Juvenile Chinook salmon and steelhead utilize Catherine Creek reaches for overwintering habitat where the HMS is located. Overwintering habitat has been identified in the *Draft Northeast Oregon Management Unit Plan for Spring/Summer Chinook and Steelhead Recovery Plan (2010)* as a habitat limitation. Due to their low survival rates during the winter months, overwintering habitat for juvenile Chinook salmon in Catherine Creek has recently become a high priority for the Grande Ronde Model Watershed (GRMW), which coordinates habitat restoration projects on both public and private lands within the Grande Ronde Basin. The reach of Catherine Creek for the HMS is also a migratory corridor for juvenile and adult fish of all three ESA-listed fish species.

The HMS will provide backwater and rearing habitat for aquatic species, an off-channel velocity refuge, and critical wetland habitat for a variety of bird species that utilize wetland habitat for breeding, rearing, nesting, and migratory rest stops. Local aquatic and terrestrial biodiversity will increase, improving resilience of the local ecosystem in response to disturbance (e.g., invasive species).

Ecological goals and objectives are categorized as wetland or non-wetland, and are summarized on Table 1.

Table 1. Wetland and Non-Wetland Mitigation Goals and Objectives

Component	Goal(s)	Objectives
Wetland	Create at least 4.76 acres of wetland and enhance approximately 1.45 acres of wetland at the HMS to replace lost functions and values of impacted wetlands.	Create a channel between Catherine Creek and the oxbow through the HMS to provide hydrologic connection at 1.5-year flow events and greater.
		Excavate the HMS to the specified grade of the engineered site design to increase floodplain connectivity.
		Plant the HMS with a wetland seed mix and wetland shrub and tree species to mitigate erosion, enhance sediment trapping, provide future recruitment of large wood and cover, and provide shading to reduce stream temperature.
Non-Wetland	1) Increase fish habitat. 2) Reduce stream temperature at or near the HMS. 3) Mitigate sedimentation of Catherine Creek.	Create a channel through the HMS connecting Catherine Creek and the oxbow, providing a high flow refuge for juvenile fish.
		Install four large wood structures in the oxbow to increase habitat complexity.
		Plant the HMS with a wetland seed mix and wetland shrub and tree species to mitigate erosion, enhance sediment trapping, provide future recruitment of large wood and cover, and provide shading to reduce stream temperature. This is also anticipated to increase volume and duration of cool water release during low flow periods typically observed during the late summer season, mitigating warmer stream temperatures.

1.4 Summary of Impacts and Mitigation

This section summarizes the anticipated impacts to wetland and non-wetland resources occurring from construction and operation of the Project. Impacts associated with the Project will also be described in the JPA. Wetland mitigation associated with this CWNWMP is intended to meet federal and state regulatory requirements developed under the guidance of the DSL. As stated in *Chapter 8: Compensatory Mitigation for Wetlands and Tidal Waters of DSL's Guide to the Removal/ Fill Permit Process*, DSL rules and regulations meet USACE standards for wetland mitigation, which are based on the 2008 federal mitigation rule (33 Code of Federal Regulations). Oregon's stream mitigation regulations are currently under development by the USACE, U.S. Environmental Protection Agency, and Willamette Partnership. Non-wetland mitigation associated with this CWNWMP is intended to meet the DSL's interim draft guidance standards for stream mitigation.

1.4.1 Summary of Wetland Impacts and Mitigation

The Project is anticipated to permanently impact approximately 3.05 acres of wetland habitat, encompassing 118 different sites ranging in size from approximately 0.001 acres to approximately 0.037 acres, averaging approximately 0.03 acres per site, thus requiring compensatory mitigation of this impact by creation, enhancement, and/or restoration of wetland habitat at another location (see Appendix A for impacted wetland data). Temporary wetland impacts associated with the Project are anticipated to be rectified within 24 months from the initial impact date and, therefore, are presumed not to require mitigation.

To mitigate for permanent impacts, approximately 6.21 total acres of wetlands will be created and enhanced adjacent to Catherine Creek in the Grande Ronde Basin of Union County, Oregon. This total will consist of creation of approximately 0.57 acres of Palustrine Forested (PFO), 1.69 acres of Palustrine Scrub-Shrub (PSS), and 2.50 acres of Palustrine Emergent (PEM) wetlands, and enhancement of approximately 1.45 acres of existing PEM wetland. Additionally, the construction of a side-channel between Catherine Creek and the oxbow will improve hydrologic connectivity, and the removal of invasive species is anticipated to improve the wetlands. Utilizing DSL's compensatory wetland mitigation ratios for created and enhanced wetlands, the combined acreages equate to 3.66 acres of wetland mitigation credit. Table 2 summarizes impacted wetland site acreages by hydrogeomorphic (HGM) and Cowardin classifications, along with mitigation acreages and credits.

Currently, the existing wetlands within the HMS have an over-abundance of weedy species such as reed canarygrass (*Phalaris arundinacea*), and a decreased presence of woody species. Establishment of surface flow hydrologic processes will reverse degraded hydrology and allow self-sustaining recruitment of native woody species at the site. These processes, in combination with invasive species removal and control measures, as well as planting and seeding of native wetland stock, will enhance the site by increasing wetland functions and values (see Section 6.0 for a functions and values assessment).

Table 2. Wetland Mitigation Summary

Site	Permanent Impact			Mitigation						
	Cowardin	HGM	Acres	Mitigation Method	Cowardin	HGM	Acres	Mitigation Ratio	Credits Gained	
Impact Sites	L1UB	n/a	0.033							
	PUS	Unknown	0.026							
	PAB	Unknown	0.029							
	PEM	Depressional	0.004							
		RFT	0.016							
		Slope	0.757							
		Unknown	1.36							
	PSS	Unknown	0.678							
	Unknown	0.15								
HMS				create	PEM	RI	2.50	1.5:1	1.67	
					PSS	RFT	1.69	1.5:1	1.13	
					PFO	RFT	0.57	1.5:1	0.38	
				enhance	PEM	RI	1.45	3:1	0.48	
Total			3.053				6.21		3.66	

L1UB = Lacustrine Limnetic Unconsolidated Bottom

RFT = Riverine Flow-Through

RI = Riverine Impounding

PAB = Palustrine Aquatic Bed

PUS = Palustrine Unconsolidated Shoreline

1.4.2 Summary of Non-Wetland Impacts and Mitigation

The Project construction and implementation is anticipated to permanently impact approximately 14,533 linear feet (1.68 acres) of stream habitat at 457 sites throughout the entire project corridor and associated transmission line access infrastructure. The total permanent stream impact acres include additional adjustments and contingency planning acreage (see Appendix A for impacted stream data).

To mitigate for these anticipated impacts, the HMS will incorporate in-stream aquatic habitat improvements along approximately 432 linear feet of stream channel within the oxbow at the project site to create additional fish habitat, riparian planting along approximately 1,080 feet of Catherine Creek, and a high flow side channel (810 linear feet, 0.19 acres) will be constructed between Catherine Creek and the oxbow.

Table 3 provides a summary of permanently impacted non-wetland sites, and Appendix A provides specific site summary information for non-wetland impacts.

Table 3. Non-Wetland Mitigation Summary

Site	Permanent Impact				Mitigation			
	Stream Type	Number of Sites	Acres	Linear Feet	Stream Type		Acres ¹	Linear Feet
Project	Ephemeral	59	0.14	2,073				
	Intermittent	295	1.01	8,419				
	Perennial	103	0.53	4,041				
HMS					Intermittent		0.19	810
					Perennial	In-stream	0.71	432
						Riparian	n/a	1,080
Total		457	1.68	14,533			0.90	2,322

¹ Assumed width of 10 feet for created intermittent side channel

The side channel will allow for increased connectivity between Catherine Creek, the oxbow, and the wetlands, as well as providing an off-channel velocity refuge for fish during high flows. The engineered log jams will be constructed of appropriately sized trees along with other woody debris, and will be designed to withstand flood flow events. The structures will protrude into the channel and create cover for fish from predators and will act as a food supply for fish by providing an environment in which macroinvertebrates can thrive. Trees will be pinned together and anchored with ballast rocks to ensure stability (see Plan Sheets in Appendix B for further details).

In addition to the direct physical improvements of in-stream habitat, the forested/scrub-shrub wetlands paralleling approximately 1,080 linear feet of Catherine Creek and the oxbow will improve the existing riparian habitat and provide additional shading and terrestrial nutrient inputs to the aquatic system.

These habitat improvements will provide essential habitat for ESA-listed spring Chinook salmon, summer steelhead, and bull trout. Adults and/or juveniles of all three species utilize the Catherine Creek system for spawning, overwintering habitat, and as a migratory corridor.

1.5 Summary of Functions and Values Gains and Losses

This section summarizes the function and value gains and losses anticipated for both wetland and non-wetland components of the Project construction and operation.

1.5.1 Summary of Wetland Functions and Values Gains and Losses

The project traverses four Hydrologic Unit Code (HUC) 6 basins, each having ORWAP data collected at a representative impacted wetland site. The HMS was also evaluated using ORWAP (see Appendix C). There will be a loss of wetland functions and values as a result of the proposed construction of the Project, with these losses offset by the anticipated gain in functions and values from the HMS.

The anticipated outcome of the HMS is to have no net loss of wetland function as a result of the proposed construction. The impacted sites total approximately 3.05 acres of wetland and 14,533 linear feet (1.68 acres) of non-wetland. The HMS provides approximately 3.66 acres of wetland mitigation credit and 2,322 linear feet (0.90 acres) of stream mitigation credit. For details of each attribute's function and value, please see Section 5.0.

1.5.2 Summary of Non-Wetland Functions and Values Gains and Losses

There will be a loss of stream functions and values as a result of the proposed construction of the Project, with these losses offset by the anticipated gain in functions and values from the HMS. A draft functional assessment of streams proposed for permanent impacts is included in Appendix D. The anticipated outcome of the HMS is to have no net loss of stream function as a result of the proposed construction.

Stream function at the HMS is anticipated to be improved over the existing condition and provide a net gain in function on a regional scale. This improvement and gain is anticipated to be achieved by the following:

- Improved in-stream habitat, specifically benefiting ESA-listed spring Chinook salmon, summer steelhead, and bull trout.
- Improved hydrologic function of Catherine Creek with reconnection of the stream and floodplain, improved sediment trapping, surface water filtration, and riparian/wetland species recruitment to the site.
- Mitigation of sedimentation due to enhancement and creation of forested and scrub-shrub wetlands, thereby improving riparian function and bank stability.
- Improved thermal regulation of the stream channel due to increased channel shading provided from wetland tree and shrub species.

The Project traverses four HUC 6 basins and benefits of the above-listed functions are anticipated to be of greater ecological value than what would be produced with comparatively small, spatially isolated stream improvement projects completed over the large landscape of eastern Oregon. Stream values, such as the ecological benefit to ESA-listed spring Chinook salmon, summer steelhead, and bull trout, are also anticipated to increase. Again, values of the overall stream mitigation are likely to be greater than the net change in value associated with relatively small, isolated stream improvement and restoration projects. Additionally, since anadromous fish species do not occur in many of the impacted streams, the HMS is anticipated to provide a substantial net gain in both function and value of the non-wetland component for the region as a whole.

2.0 COMPENSATORY WETLAND AND NON-WETLAND MITIGATION SITE INFORMATION

2.1 Site Landowner Information

The HMS is located on Tax Lot 3200 of Township 2 South, Range 40 East, Section 19 NW/SW in Union County, Oregon, (see Figure 1, Location and Vicinity Maps, and Figure 2, Tax Lot Map). Landowner information is as follows:

Owner: John and Trudy Hassinger
68333 Kerns Loop
Cove, Oregon 97824
Phone: (541) 975-5600

IPC will enter into a long-term (perpetual) lease with the owner for the use of the property as part of IPC's long-term maintenance plan (see Section 9.3). Based on a cooperative agreement, GRMW or another non-profit or non-governmental organization will be responsible for operation of the site and maintenance of the mitigation area. Contact information for IPC is as follows:

Contact: Zach Funkhouser
Phone: 208-388-5375
Fax: 208-388-6902
E-mail: zfunkhouser@idahopower.com

2.2 Physical Location Information

The HMS is located approximately 6.5 miles east of Oregon State Route 82, and 0.8 mile north of Booth Lane. The legal description is Township 2 South, Range 40 East, Section 19 NW/SW, in Tax Lot 3200. The center of the mitigation wetland is latitude 45.3775 and longitude -117.8878. Location and vicinity maps are shown on Figure 1, and an aerial photo of the proposed project site is shown on Figure 3.

3.0 DESCRIPTION OF HOW THE CWNWMP ADDRESSES THE PRINCIPAL OBJECTIVES

3.1 Functions and Values Replacement

The HMS will provide similar functions and values as the impacted wetlands and provide critically valuable habitat for ESA-listed spring Chinook salmon, summer steelhead, and bull trout. This section describes the replacement of impacted wetlands and non-wetland functions and values with the construction of the HMS.

3.1.1 Wetland Function and Value Replacement

The impacted wetlands are classified in the Cowardin system as Palustrine (Emergent, Scrub-Shrub, Forested, Aquatic Bed, and Unconsolidated Shore) and in the HGM system as Depressional, Riverine, Slope, and unknown. Refer to Table 2 in Section 1 for a summary of specific impact site classifications and acreages.

The functions and values of the HMS are anticipated to be generally similar to the impacted areas, as the proposed created and enhanced wetlands at the HMS will be Palustrine (PES, PSS, and PFO), and Riverine. Refer to Table 2 for HMS wetland type and acreage summaries. The hydrologic regime under the proposed CWNWMP is anticipated to produce a period of inundation of at least 14 days, occurring approximately between April and June, during high flow and water table periods typically observed in early spring during the growing season.

3.1.2 Non-Wetland Function and Value Replacement

A total of 457 stream sites will be permanently impacted by the Project construction. Of these, 59 are ephemeral (0.145 acre, 2,073 linear feet), 295 are intermittent (1.01 acres, 8,419 linear feet), and 103 are perennial (0.53 acre, 4,041 linear feet), for a total impact of approximately 1.68 acres and 14,533 linear feet.

The HMS will provide approximately 0.90 acres and 2,322 linear feet of stream mitigation to Catherine Creek, which is a perennial anadromous fish-bearing stream and a major tributary of the Grande Ronde River. ESA-listed spring Chinook salmon, summer steelhead, and bull trout are known to inhabit this stream system.

3.2 Local Replacement of Locally Important Functions and Values

While the mitigation site is not located at the site of the wetland and non-wetland impacts, it is expected that improvements to stream habitat and wetland function of the HMS will provide greater benefit to the region in terms of overall watershed and stream health.

By consolidating the mitigation features into one larger site, the overall gain in value for the proposed wetland and non-wetland mitigation is likely to be greater than the net change in value that would occur with individual, relatively small and isolated mitigation projects along the Project alignment. Additionally, anadromous fish species do not occur in some of the impacted streams; thus, the HMS is anticipated to provide a substantial net gain for the region, in both function and value of the non-wetland component.

3.3 Self-Sustaining/Minimum Maintenance Needs

This section describes the maintenance needs and requirements of wetland and non-wetland CWNWMP components.

3.3.1 Wetland Self-Sustaining/Minimum Maintenance Needs

The HMS will receive water input that currently sustains the existing wetlands; it will be graded so it will receive adequate surface and subsurface water to be self-sustaining. Additionally, the excavated channel between Catherine Creek and the oxbow through the HMS will provide a hydrologic connection at 1.5-year flow events and greater, providing for natural wetland vegetation recruitment and appropriate hydrology (seasonal flooding) for the created wetland types at the HMS during seasonal high flow events. Future maintenance needs may include periodic weed control.

3.3.2 Non-Wetland Self-Sustaining/Minimum Maintenance Needs

Stream and aquatic habitat improvements will require no maintenance, as the woody debris structures are designed to be maintenance-free and long-lasting. The excavated channel between Catherine Creek and the oxbow through the HMS will also be maintenance-free and will re-establish surface hydrologic connectivity that will provide for natural riparian vegetation recruitment. Future maintenance needs may include periodic weed control.

3.4 Siting Considerations

The HMS has been sited and designed to maximize stream and wetland processes, functions, and existing ecological enhancement to the extent possible at a comparatively large mitigation site relative to impact sites.

IPC explored several mitigation options available to them, including an 80-acre parcel located in the Middle Snake HUC 4 watershed, a parcel located in Baker County, Oregon, and multiple restoration opportunities with the GRMW in the Upper Grande Ronde River Subbasin. The 80-acre parcel located in the Middle Snake HUC 4 watershed had potential as a floodplain restoration and water quality improvement project. The Baker County parcel is located in the Lower Snake HUC 4 watershed near Baker City, Oregon. Both of these properties are privately owned and mitigation plan development would lack the needed guidance of watershed scale needs, planning, and project implementation experience, such as that provided by an organization like the GRMW. In addition, neither site would provide benefit for ESA-listed fish species due to their location upstream of the Oxbow Dam on the Snake River. The Oxbow Dam blocks migration corridors historically utilized by native ESA-listed fish species.

The GRMW began coordinating restoration projects in 1994 within the Grande Ronde Basin. Projects have addressed nearly every component of watershed health including water quality, water quantity, in-stream habitat complexity, riparian condition, streambank stability, and fish passage. With this valuable resource available to aid in project planning, implementation, and management, IPC selected one of several mitigation project options through the GRMW. The preferred alternative was selected based on stream habitat and water quality enhancement

potential and cost/benefit returns. This site provides ample mitigation opportunities for both wetland and non-wetland impacts associated with the construction of the Project and it will be implemented and managed with local watershed knowledge and experience provided by the GRMW.

3.5 Minimize Temporal Loss

The mitigation area is anticipated to be created prior to or concurrently with construction of the Project, thereby, minimizing temporal loss of wetlands as a result of the project.

Within the HMS, impacts to existing wetlands that are to remain undisturbed will be minimized by marking existing wetland boundaries to limit equipment intrusion during excavation of created and enhanced wetlands. If existing wetlands outside the creation/enhancement mitigation area are temporarily disturbed, they will be restored by returning them to original contours and reseeded.

Construction of the wood habitat structures will occur prior to the creation and enhancement of the wetlands, and live stakes will be planted within the structures to restore the disturbed PSS wetland. No long-term adverse impacts are anticipated to the existing wetlands in the vicinity of the wood habitat structures.

4.0 COMPENSATORY WETLAND AND NON-WETLAND MITIGATION SITE EXISTING CONDITIONS

4.1 Wetland Delineation or Determination Results

Wetland delineations were conducted on the HMS on August 27 and 28, 2015, and October 21, 2015. A draft wetland delineation report describing 11 wetlands totaling 2.79 acres, and two waterways (Catherine Creek and an oxbow), was prepared on October 13, 2016. This draft wetland delineation report will be submitted in 2017 to the DSL for review.

4.2 Existing HGM and Cowardin Classes On-Site

There are 11 existing wetlands in the wetland delineation study area, classified as PEM and PSS using the Cowardin classification system, and Depressional and Riverine using the HGM classification system.

Photographs of existing site conditions are shown on Figure 4.

4.3 Description of Existing and Proposed Hydrology

The existing site receives hydrologic input from Catherine Creek as well as from precipitation. The site is currently inundated at approximately the 2-year flood event when the water over-tops the banks of Catherine Creek. Catherine Creek parallels the north edge of the site, running generally east before turning south into the oxbow that parallels the east edge of the site. The proposed wetland mitigation area is on the south side of Catherine Creek and west of the oxbow. Catherine Creek is a perennial stream and a main tributary of the Grande Ronde River in the Upper Grande Ronde Subbasin, providing year-round surface flow and seasonal flooding potential, conducive to wetland habitat construction and restoration.

The HMS will enhance the hydrologic regime, as the site will have direct connection to the main creek channel during periods of high flow. A portion of the HMS area will be graded to create hydrologic connectivity through the site, and a high flow side channel between Catherine Creek

and the existing oxbow will be constructed. The side channel will allow for increased flow into the oxbow and will provide an off-channel velocity refuge during high flows. The HMS will be graded to elevations similar to the existing wetlands on site to produce a wetland hydrologic regime for the newly created wetlands. The hydrologic regime under the proposed CWNWMP is anticipated to produce a period of inundation, on average, of at least 14 days, occurring approximately between April and June, during high flow and water table periods typically observed in early spring during the growing season.

4.4 Existing Site Conditions

4.4.1 Existing Plant Communities

The majority of the HMS area is currently unfarmed grassland. The existing upland and wetland plant communities identified in IPC's wetland delineation report consists of a variety of herbaceous, grass, and shrub species, both native and invasive. The predominant existing plant community identified in the wetland delineation consists of herbaceous vegetation across most of the site, including primarily reed canarygrass (*Phalaris arundinacea*), meadow foxtail (*Alopecurus pratensis*), and Sheldon's sedge (*Carex sheldonii*). A narrow band of woody vegetation, including willows (*Salix amygdaloides*, *S. exigua*) and red osier (*Cornus alba*) is located in the riparian zone along Catherine Creek and the oxbow.

4.4.2 Existing Aquatic Communities

The site borders Catherine Creek, a major perennial tributary of the Grande Ronde River, in the Upper Grande Ronde River Subbasin. This stream, along with the Grande Ronde River, is classified as Essential Salmonid Habitat by the Oregon Department of Fish and Wildlife and Essential Fish Habitat under the Magnuson-Stevens Act. Additionally, Catherine Creek, along with much of the Grande Ronde River Basin, is designated critical habitat for bull trout, spring Chinook salmon, and summer steelhead. Anadromous salmonid species and bull trout are protected under the ESA. Recovery plans for listed bull trout and salmonid species have been developed that seek to restore fish populations and their habitat to sustainable levels.

The *Draft Northeast Oregon Management Unit Plan for Spring/Summer Chinook and Steelhead* and the *Grande Ronde Subbasin Plan* both identify lower Catherine Creek as an important reach for overwintering juvenile spring Chinook salmon and summer steelhead. Habitat quantity and quality are both considered key limiting factors in lower Catherine Creek, where the HMS is located. Overwintering juvenile spring Chinook salmon prefer deep, slow velocity water near cover. This type of habitat is lacking in lower Catherine Creek due to anthropogenic influences. Historical accounts by early settlers indicate that lower Catherine Creek was a slow, deep, and meandering river with abundant riparian cover for fish. These accounts will help to guide stream mitigation efforts at the proposed mitigation site.

Existing non-wetland site conditions are summarized on Table 4; the concept is derived from Oregon's stream mitigation framework currently under development by USACE, the Environmental Protection Agency, and the Willamette Partnership. Table 4 was developed using Oregon Department of State Land's *Guidance for Assessing Stream Functions and Values under the Oregon Removal/Fill Program*. Absence of an attribute status indicator in specific function rows indicates the attribute is not associated with that specific function.

Catherine Creek is a perennial stream system, and as such, the inclusion of this attribute in the summary is intended to indicate its effect on stream systems and the functions with which it corresponds. The base flow of the system will not change with the implementation of the proposed CWNWMP.

Table 4. Summary of Existing Non-Wetland Attributes, Functions, and Status

Function Attribute		Overbank Flow	Effective Discharge	Base Flow	Groundwater Flux	Bed Mobility	Sediment Character	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Structure and Composition	Aquatic Species' Structure and Composition	Water Quality	Water Temperature	Sedimentation
Functional Group	Function	Status													
Hydrologic Functions	Surface water storage	L		P							L				
	Sub/surface transfer				A						L				
	Flow variation	L	A	P	A						L				
Geomorphic Function	Sediment continuity	L	A			L		L							
	Substrate mobility	L	A			L	L		L						
Biological Functions	Maintain biodiversity										L	A			
	Create habitat	L	A	P		L	L	L	L	L	L	A			L
	Sustain trophic structure										L	A	L		
Chemical and Nutrient Functions	Nutrient cycling	L			A			L			L		L		
	Chemical regulation												L		
	Thermal regulation		A								L			L	

A = Adequate; L = Limited; P = Perennial

The following is an explanation of the “Adequate” status ratings for effective discharge, groundwater flux, and aquatic species structure and composition attributes indicated on Table 4:

- Effective discharge is currently produced by the stream, indicated by the seasonal variation in stream flow where spring flows generally transport the greatest volume of sediment. The functions of sediment continuity, substrate mobility, creation of habitat, and thermal regulation are limited by anthropogenic modifications of the channel, while natural flow variations remain relatively undisturbed.
- Groundwater flux of the system is currently adequate to sustain perennial flow of the stream, meeting both anthropogenic demands and wildlife habitat requirements, and contributes to nutrient cycling, flow variations, and subsurface transfer.
- Aquatic species, structure, and composition are adequately maintained within the local system, as the functions of biodiversity, trophic structure, and habitat are influenced to a greater degree by regional anthropogenic impacts, such as dam construction.

It is anticipated the attributes currently considered “Adequate”, as well as the attributes shown as “Limiting”, will be improved upon with the implementation of the proposed CWNWMP, thus contributing to the improved function of the stream system as a whole.

4.5 Site Constraints or Limitations

There are few constraints to performing habitat enhancement at the mitigation site. Much of the land around the site is actively managed for agriculture; however, the site itself has not been used for active agricultural purpose for several years. Other potential constraints are related to habitat, such as the persistent local threat of invasive species such as reed canarygrass and the potential browsing impact on new plantings from the existing wildlife population in the area.

Site preparation, including mechanical and chemical treatments, should significantly reduce the existing weed population. As part of the mitigation plan requirement, the site will no longer be used for farming practices. Browsing is anticipated to be a challenge to overcome; however, with the myriad of deer repellent products available, some of these could potentially be utilized in concert with adaptive management strategies.

5.0 FUNCTIONS AND VALUES ASSESSMENT

This section describes the rationale behind functions and values assessments of wetland and non-wetland components of this CWNWMP.

5.1 Rationale for Method Used in Wetland Assessment

Since the project area is not tidal or located in the Willamette Valley, ORWAP was used, as required by the DSL.

This analysis was conducted by IPC on representative wetland sites within the Project site boundary during 2011-2013 wetland delineations. Table 5 provides a summary of representative wetland sites where ORWAP data were gathered. See Appendix C for representative impact and mitigation sites ORWAP data. See Figure 5, ORWAP Site Locations.

Table 5. Representative ORWAP Wetland ID

ORWAP ID	Delineated Acres	Cowardin	HGM
BAPRO 594	0.5	PEM	Riverine Flow-through
MAL1-Alkaline	0.6	PEM	Slope
MAWLLCK-370	0.02	PSS	Riverine
BA G 115&117	0.15	PEM	Riverine
BA G 145	0.10	PEM	Slope
BA G 148	0.15	PEM	Riverine
BA G 210.1	0.03	PEM	Riverine
CloverCreek 2012	4.50	PEM	Slope
MA G 207	1.90	PEM	Depressional
MA G 228	0.03	PFO	Slope
MA G 232.2	0.10	PEM	Riverine
MA G 269	0.01	PFO	Riverine; Slope Valley
MA G 269.2	0.01	PEM	Riverine
UM G 82	0.20	PEM	Riverine
UM G 105	2.00	PEM	Slope

5.2 Summary of Expected Wetland Functions and Values Gains and Losses

The functions and values of the existing wetlands and the predicted condition were evaluated using ORWAP. Table 6 presents a summary of the expected wetland functions and values gains and losses for the representative impact sites and the mitigation site.

Table 6. Summary of Expected Wetland Functions and Values Gains and Losses

Grouped Services		Impact Sites		Hassinger Mitigation Site (HMS)				
		PEM Representative Sites	PFO/PSS Representative Sites	PEM				PSS/PFO
				Existing	Predicted ²	Net Change		
		Net Change ¹	Net Change ¹			Create ³	Enhance	
Hydrologic Function	Function	-2.1	-0.9	3.8	3.5	3.5	-0.3	3.8
	Value	-3.3	-3.4	2.7	2.7	2.7	0.0	2.7
Water Quality	Function	-7.1	-7.6	5.3	5.1	5.1	-0.2	5.1
	Value	-5.5	-5.5	7.5	8.7	8.7	1.2	8.7
Carbon Sequestration	Function	-2.5	-2.6	2.4	2.8	2.8	0.4	2.8
Fish Support	Function	-3.7	-4.1	0.7	5.8	5.8	5.1	5.8
	Value	-4.1	-3.7	10.0	10.0	10.0	0.0	10.0
Aquatic Support	Function	-6.6	-6.8	7.3	7.6	7.6	0.3	7.7
	Value	-8.1	-8.0	8.7	8.7	8.7	0.0	8.7
Terrestrial Support	Function	-5.8	-5.6	4.9	5.5	5.5	0.6	6.9
	Value	-7.7	-7.9	8.0	10.0	10.0	2.0	10.0
Public Use and Recognition	Value	-1.6	-1.5	0.5	1.9	1.9	1.4	1.9
Provisioning Services	Value	-2.0	-2.00	0.0	0.0	0.0	0.0	0.0

¹ Predicted functions and values of the representative wetland impact sites are assumed to be 0, as the impacted sites they represent will no longer be wetlands. Many of the representative sites, as with the actual impact sites, are very small portions of larger wetlands, which will continue to function at current levels.

² Predicted values for created and enhanced PEM wetlands are assumed to be similar.

³ Existing functions and values associated with the **created** PEM wetlands at the HMS are assumed to be 0 since these areas are currently upland.

⁴ Existing functions and values associated with the **created** PSS and PFO wetlands at the HMS are assumed to be 0 since these areas are currently upland.

The apparent net loss of functions for hydrologic function and water quality is a result of the construction of the side channel within the mitigation site, causing the scores for water retention and sediment retention and stabilization to decrease. That the overall outcome of the proposed mitigation project is expected to increase the function and value of the site as a whole.

5.3 Rationale for Method Used in Non-Wetland Assessment

Oregon's stream mitigation framework is currently under development by USACE, Environmental Protection Agency, and Willamette Partnership. As such, the professional judgment and local expertise provided by the GRMW were utilized in assessing the stream function and values of the impact sites and HMS.

5.4 Summary of Expected Non-Wetland Gains and Losses

A quantification of stream impacts compared to stream mitigation is summarized on Table 7. This provides a basis for comparison and assessment of non-wetland impacts and mitigation.

Table 7. Summary of Permanent Non-Wetland Impact and Mitigation

Stream Type	Impact Sites		HMS	
	Total Area (acres)	Total Length (feet)	Area (acres)	Length (feet)
Ephemeral	0.14	2,073	n/a	n/a
Intermittent	1.01	8,419	810	0.19
Perennial	0.53	4,041	432	0.71
Total	1.68	14,533		

Impact sites associated with the Project construction and operation are comparatively small and occur predominantly on intermittent stream systems that are non-fish bearing. Conversely, the HMS equates to approximately 2,322 linear feet (0.90 acres) of enhanced and created stream habitat in a major anadromous fish habitat watershed. Many of the impact sites occur above a point where anadromous fish passage is blocked by the Oxbow Dam on the Snake River. Tributaries above this point of the Snake River system cannot provide for endangered anadromous fish migration. The volume of enhanced and created habitat and its location provide a major benefit to endangered species.

Stream functional groups, including hydrologic, geomorphic, biological, and chemical/nutrient functions, and their associated attributes, will be impacted predominantly on a temporary basis and subsequently restored to at least pre-disturbance function. The permanent impacts to stream function and value will be mitigated by implementation of best management practices, and construction practices involving work below the ordinary high water elevation will follow Oregon Department of Fish and Wildlife's in-water work guidelines. The Draft Stream Functional Analysis for the Project, prepared by IPC, is provided in Appendix D. This document was developed under the DSL's interim stream mitigation framework and summarizes the analysis of anticipated permanent stream impacts associated with the Project.

In summary, the losses to stream function and value will be minimal at the impact sites, all of which have low functional ratings. The magnitude of stream mitigation relative to stream impacts of the Project, along with the benefits provided for ESA-listed spring Chinook salmon, summer steelhead, and bull trout, equates to a net gain in ecological process and function in the region.

5.5 Considerations to Address Expected Wetland and Non-Wetland Losses

All expected losses to the functions and values of the impacted wetlands and streams will be addressed at the HMS, through the creation and enhancement of similar wetland areas and enhancement of an anadromous fish-bearing stream.

6.0 COMPENSATORY WETLAND AND NON-WETLAND MITIGATION CONSTRUCTION MAPS AND DRAWINGS

6.1 Grading Plan Objectives

The Grading Plan's objectives are to grade HMS to an elevation sufficient to produce wetland hydrology, support wetland vegetation, and allow hydric soil preservation and development; and to construct a side channel to increase hydrologic connectivity between Catherine Creek, the oxbow, and the wetlands. A draft of the HMS design plans is provided in Appendix B. See Plan Sheet 3 for the wetland types, locations, and areas.

6.2 Planting List and Rationale

A planting plan has been prepared and includes seeding and various types of permanent plantings to restore the site. Methods used will include woody species plantings (live stakes and container plants), wetland area seeding, and upland area seeding. Using a variety of species will ensure a diverse community.

Full details about the planting list are in the Planting Plan (Appendix B).

6.3 Construction Schedule

The Project construction will begin once federal and state permitting processes have been completed. Project construction is anticipated to begin in 2020. The mitigation area is anticipated to be created prior to construction of the Project, or at the least, concurrently with construction impacts associated with transmission line wetland impacts.

Excavation of the HMS will be completed with excavators, dump trucks, and other heavy equipment, as appropriate, with excavated material stockpiled at an upland site for later use. Topsoil will be stockpiled separately to be reapplied before planting and seeding. Excess material will be disposed of on-site in an adjacent upland field as directed by the project engineer and landowner. The created wetlands will have substantial micro-topography to enhance biodiversity. A varied topography creates micro-habitat areas more suited to specific wetland vegetation.

When the desired subgrade elevation is achieved, the site will be covered with a minimum of 12 inches of topsoil, then seeded and planted. Site excavation will likely occur in the fall when water tables are at their lowest elevations to mitigate impacts of heavy equipment in saturated soil conditions, followed by seeding of grasses and planting of woody species. Sedge and rush species will be seeded in spring after high flows begin to subside.

Wood habitat structures will be constructed in the fall to coincide with lowest annual surface water elevations and the Oregon Department of Fish and Wildlife-recommended in-stream work window (July 1 to October 15) and before construction of the wetlands.

7.0 MONITORING PLAN

7.1 Proposed Performance Standards

The following criteria will be used to evaluate the success of the mitigation site:

PEM Wetlands

- The cover of native herbaceous species is at least 60 percent.
- The cover of invasive herbaceous species is no more than 10 percent.
- Bare substrate represents no more than 20 percent cover.
- By Year 3 and thereafter, there are at least 6 different native species. To qualify, a species must have at least 5 percent average cover in the habitat class and occur in at least 10 percent of the plots sampled.
- The Prevalence Index total for all strata is less than 3.0.

PSS and PFO Wetlands

- The cover of native herbaceous species is at least 60 percent.
- The cover of invasive herbaceous species is no more than 10 percent. After the site has matured to the stage when desirable canopy species reach 50 percent cover, the cover of invasive understory species may increase but may not exceed 30 percent.
- The cover of invasive shrub or tree species is no more than 10 percent.
- Bare substrate represents no more than 20 percent cover.
- By Year 3 and thereafter, there are at least 6 different native species. To qualify, a species must have at least 5 percent average cover in the habitat class, and occur in at least 10 percent of the plots sampled.
- Prevalence Index total for all strata is less than 3.0.
- The cover of native woody vegetation on the site is at least 50 percent. Native species volunteering on the site may be included, dead plants do not count.

By the end of the fifth year following construction, a minimum of 6.21 acres of created/enhanced wetlands should be present on the site, as determined using the criteria stated in the 1987 USACE *Wetland Delineation Manual* and 2008 *Arid West Regional Supplement*.

7.2 Monitoring Methods

The following methods will be used to assess the condition of the mitigation site each year:

1. Permanent photo points will be established to provide an overall assessment of the created wetland. Additional photos may be taken as needed and included in the monitoring report.
2. Created and enhanced emergent wetland mitigation areas will be sampled using three 100-meter transects, each with ten 1-meter square meter plots. Plots will be evaluated for percent cover of all species present (Table 8).
3. Created scrub-shrub and forested wetland mitigation areas will be sampled with two 100-meter transects, each with five 50-square meter plots. Each of these large plots will also contain two additional randomly selected 1-square meter plots for sampling of herbaceous vegetation. Plots will be evaluated for percent cover of all species present.

4. Each year, a minimum of four test pits will be dug in the mitigation area (two in the emergent wetland area, and two in the created scrub-shrub and forested wetlands) and examined for the presence of saturation within the upper 12 inches, inundation, soil oxidation-reduction characteristics and other indicators of hydric soils and wetland hydrology, as outlined in the 1987 USACE *Wetland Delineation Manual* and the 2008 *Arid West Regional Supplement*.
5. The site will be delineated by the end of the fifth growing season following construction, to verify the size of the created/enhanced wetlands. This delineation will be conducted in accordance with the 1987 USACE *Wetland Delineation Manual* and the 2008 *Arid West Regional Supplement*.

Table 8. Sample Plot Summary

Vegetation Type	Acres	Number of Samples
Emergent	3.95	30
Shrub/Forested	2.26	10 plus 20 herbaceous

In addition to the above steps, an unobtrusive monitoring method of observation will be utilized to evaluate the use of created/restored habitat for ESA-listed spring Chinook salmon, summer steelhead, and bull trout fish species. Observations shall be conducted by the GRMW or other appropriate non-profit or non-governmental organization, who will prepare an annual report for submission to the Oregon Department of Fish and Wildlife and DSL on utilization and trends for a period of five years following project completion.

7.3 Monitoring Schedule

A post-construction report will be provided, documenting the as-built condition of the site and establishing permanent photo points.

A minimum 5-year monitoring program is proposed for the HMS. Once annually, during the spring or early summer, the site will be visited and the conditions will be compared to the success criteria. The vegetation and notable conditions of the overall site will be recorded, and an annual monitoring report will be submitted to the DSL and USACE by December 31 of each year.

To determine whether the minimum acreage of wetlands has been created/enhanced, the site will be delineated no later than the fifth growing season following construction.

7.4 Rationale for Plot and Photo-Documentation Locations

The sample plots will be located to provide a representative sampling of the vegetation in the mitigation areas, and the photo point locations will be placed to provide good views of the mitigation site as a whole, with closer details as needed. Chosen sampling methods, described in Section 7.2, meet the DSL Routine Monitoring Guidance for Vegetation standards for sample size based on vegetation type.

8.0 LONG-TERM PROTECTION AND FINANCIAL SECURITY INSTRUMENTS

8.1 Description of Proposed Protection Instrument

IPC will ensure long-term protection of the HMS through a conservation easement to provide perpetual protection and conservation of the mitigation wetlands' and waterways' functions and

values, and wetland habitat improvement management of the property. IPC is currently in negotiations with the Site Landowner (Section 2.1) for a possible option agreement.

8.2 Description of Proposed Financial Security Instruments

IPC's ASC for the Project includes evidence demonstrating that IPC has both the organizational expertise (ASC Exhibit D) and the financial capability (ASC Exhibit M) to construct and operate the facility in compliance with the terms of its Site Certificate, which will include a condition requiring implementation of the CWNWMP as approved by the Oregon Department of Energy (ODOE) and DSL. The GRMW or other appropriate non-governmental organization will provide for the long-term maintenance of the site with funding provided by IPC.

8.3 Long-Term Maintenance Plan

The HMS will be maintained and monitored by the GRMW or other appropriate non-profit or non-governmental organization as part of its agreement with IPC. As the site certificate holder, IPC is responsible for site certificate compliance, and will review the ongoing maintenance and monitoring activities at the HMS. IPC will review annual monitoring reports for completeness and will submit the reports to ODOE. IPC would reserve the right to terminate the arrangement with the non-profit organization if maintenance and monitoring activities are not in compliance with permit requirements.

The responsible third-party organization will be responsible for weed control or other remedial measures required at the HMS.

The restoration seeding and planting of the HMS is designed to mimic site conditions of local wetlands. It is expected the natural seed bank will establish in Years 1 and 2 following construction.

Hydrology of the HMS will be the same as the flow that sustains the existing wetlands but will be enhanced by grading a portion of the site to create hydrologic connectivity through the site and by constructing a high flow side channel between Catherine Creek and the oxbow. Beneficial uses and functions of the site, including wildlife habitat and water quality, are anticipated to improve as a result of this project.

8.3.1 Noxious Weed and Invasive Species Management

The GRMW or other appropriate non-profit or non-governmental organization will be responsible for controlling weeds in the HMS. Each year the site will be monitored for noxious and invasive species. The responsible organization will follow the recommendations of a licensed applicator to control weeds within the area.

8.3.2 Compatible Uses/Protection

Due to the isolation and private ownership of the site, it will be accessible only to the landowner, the GRMW, and others with explicit landowner permission. There will be limited, if any, public access. Limited access provides protection from potential damage from trespassing. The landowner will maintain control of access to the site but will grant the DSL and ODOE access to the site to conduct review and monitoring activities when requested.

The landowner may use the site for general enjoyment, but may not use the HMS area for agricultural activities. This includes livestock grazing or any other activities not consistent with the goals of this CWNWMP. The site will provide ecological benefits including those related to water quality and wildlife habitat.

8.3.3 Maintenance and Monitoring

The GRMW or other appropriate non-profit or non-governmental organization will be responsible for all monitoring activities of the HMS, including providing annual monitoring reports (up to five years) to the DSL and Oregon Department of Fish and Wildlife and the delineation of the HMS area no later than Year 5. The Monitoring Plan and associated methods are outlined in Section 7.0 of this CWNWMP.

Similarly, the GRMW or other appropriate non-profit or non-governmental organization will be responsible for all maintenance activities at the HMS. Maintenance activities may include reseeding, replanting, and weed control.

All costs associated with maintenance activities that pertain to the HMS area are the responsibility of IPC.

8.4 Contingency Plan

In the event post-construction monitoring finds the HMS is not meeting identified restoration goals, corrective action will be implemented. IPC will be responsible for financing and implementing contingency plans in the event that wetland and non-wetland establishment is not meeting anticipated Project goals.

An investigation of the Project will be conducted to identify causes and appropriate mitigation action to meet Project goals. Analysis will include site factors and conditions such as soil, hydrology, variable climatic factors of the preceding year, stream flow characteristics, water table characteristics, and design and construction review including seeding and planting methods, condition of selected seed crop and planting sources, planting and seeding plan, and construction design and oversight during Project implementation. Corrective actions may include, but are not limited to:

1. Identifying limiting factor(s) in meeting Project goals.
2. Implementing appropriate mitigation measures to improve the Project's success, including but not limited to:
 - a. Grading the site to a lower elevation to create hydrologic connectivity through the site.
 - b. Constructing an additional high flow side channel between Catherine Creek and the existing oxbow to enhance hydrology.
 - c. Replanting and/or seeding areas not meeting vegetation cover parameters.
 - d. Implementing an irrigation system to improve successful wetland vegetation establishment.
 - e. Implementing aggressive weed control methods.
 - f. Constructing a water control structure between the oxbow and the main creek channel to sustain adequate water table elevations for wetland hydrology to persist throughout the growing season and during low flow periods.
3. Increasing the monitoring frequency to identify lingering issues and Project success after mitigation action has been implemented.

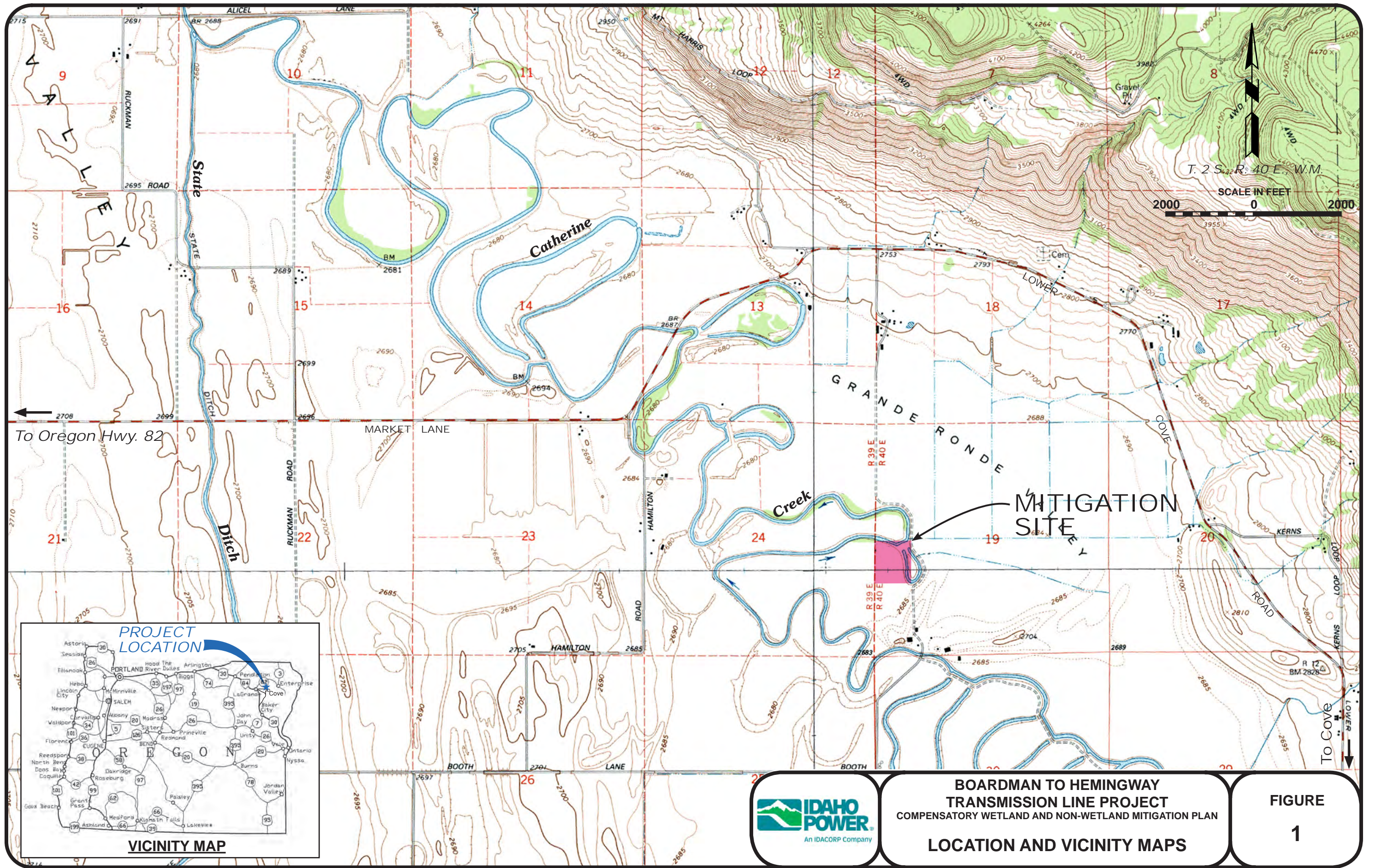
8.4.1 Possible Modes of Failure

Possible modes of failure include natural events beyond the control and liability of parties involved in the CWNWMP and implementation. An example of such an event would be

catastrophic flooding associated with extreme precipitation and/or spring snow melt (e.g., 25- to 100-year event) that could potentially scour all planted wetland vegetation or damage wood structures. Seasonal climatic factors such as extreme cold, heat, and/or precipitation during the growing season or post planting and seeding could cause irreparable damage to the seed and planting crop.

An appropriate budget strictly for the purpose of implementing contingency plans, developed in cooperation between the GRMW and IPC, will be included in the overall project budget. Financial assurance for contingency planning is from the same source as the entire Project.

FIGURES



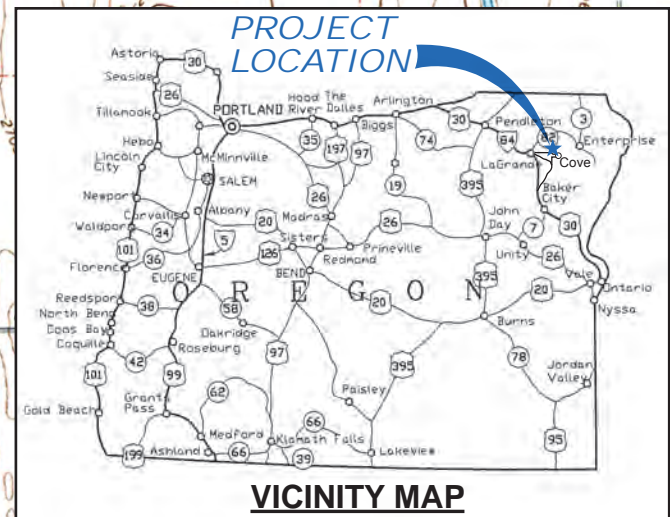
To Oregon Hwy. 82

T. 2 S., R. 40 E., W.M.

SCALE IN FEET

2000 0 2000

MITIGATION SITE



PROJECT LOCATION

VICINITY MAP



**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**
COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN
LOCATION AND VICINITY MAPS

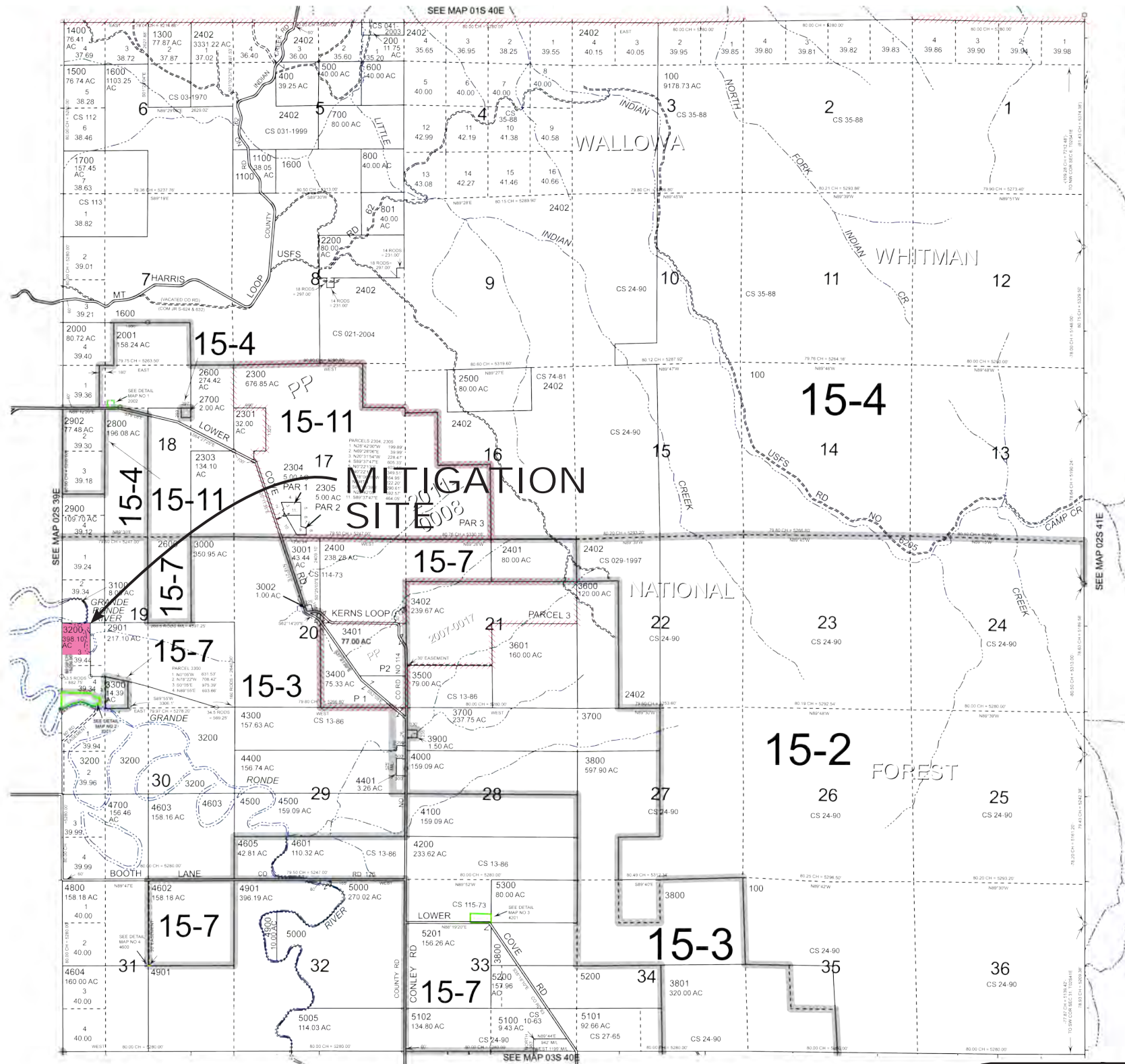
**FIGURE
1**

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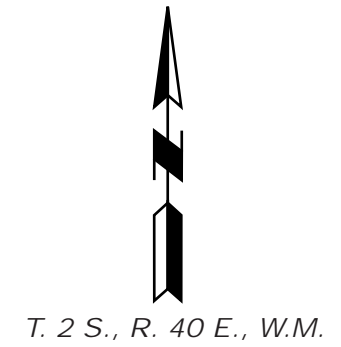


T.2S. R.40E. W.M.
UNION COUNTY

02S40E



- Cancelled
- 101
- 102
- 300
- 703
- 900
- 900T2
- 1000
- 1200
- 1500U1 & U2
- 1600T2
- 1800
- 1800T1
- 1900
- 1900T1
- 2100
- 2100T1
- 2302
- 3800M1
- 3800T1
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- 5400
- 5400M1
- 5500
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- 5500T1



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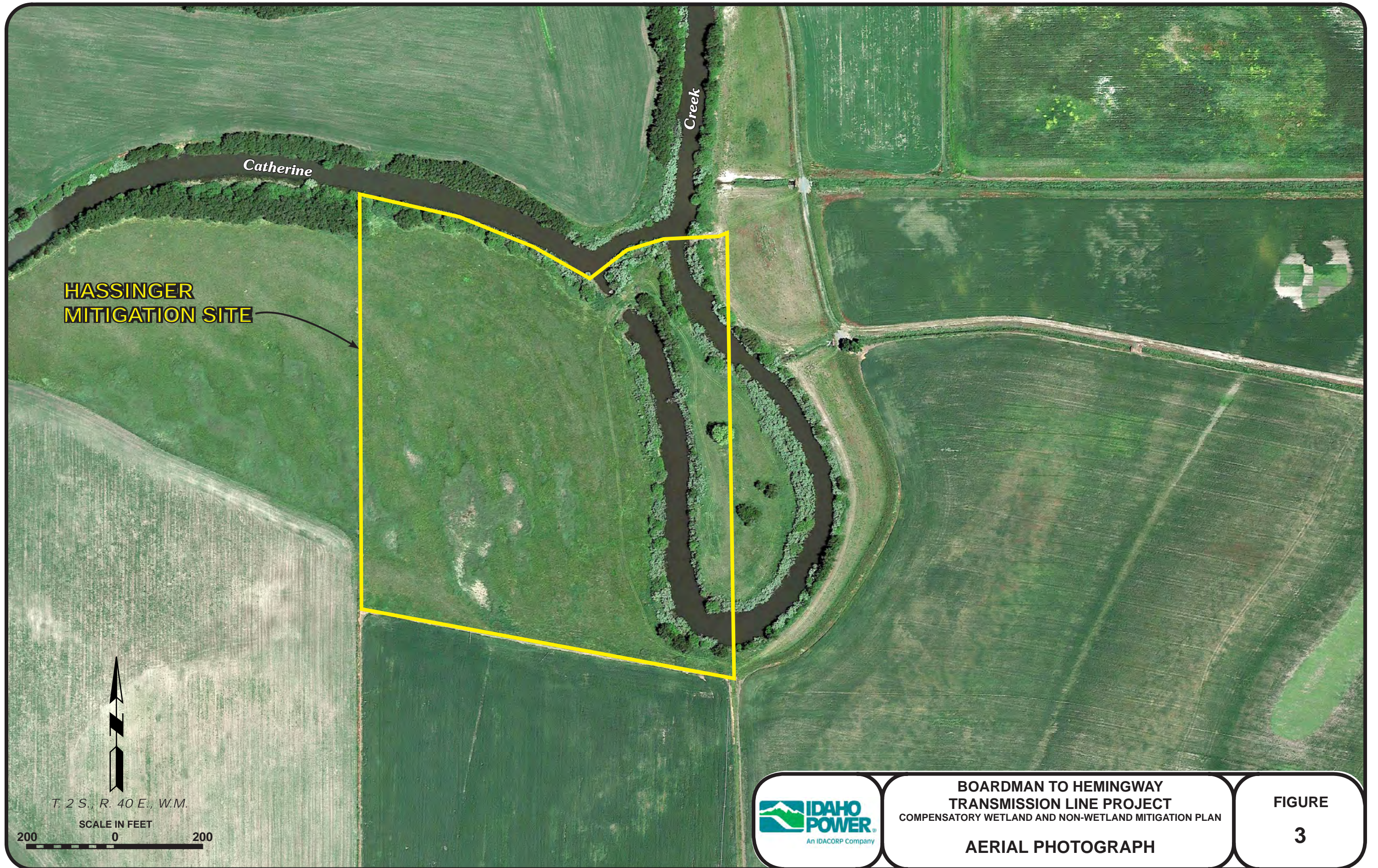
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**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**
COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN

**FIGURE
2**

TAX LOT MAP



**HASSINGER
MITIGATION SITE**

Creek

Catherine

T. 2 S., R. 40 E., W.M.

SCALE IN FEET

200 0 200



**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**
COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN

AERIAL PHOTOGRAPH

FIGURE

3



PHOTOGRAPH 1 - Looking north to south. Photograph taken by Will Rice on October 23, 2015.



PHOTOGRAPH 2 - Looking east to west across the proposed mitigation site. Photograph taken by Will Rice on October 23, 2015.



PHOTOGRAPH 3 - Looking south to north along the west side of the oxbow. Photograph taken by Will Rice on October 23, 2015.



PHOTOGRAPH 4 - Looking northwest at the south bank of Catherine Creek. Photograph taken by Will Rice on October 23, 2015.

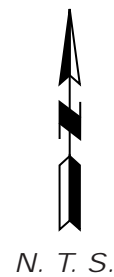


PHOTOGRAPH 5 - Monitoring Well No. 1. Photograph taken by Sue Brady on October 23, 2015.





**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**
COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN
SITE PHOTOGRAPHS

**FIGURE
4**



LEGEND

 ORWAP SITES

 MITIGATION SITE



**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**
COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN

ORWAP SITES LOCATION MAP

FIGURE

5

APPENDIX A
WETLAND AND NON-WETLAND IMPACTS SUMMARY

JPA- Wetland Impacts

Sum of TT_Acres		TYPE		
Wetland_Type	HGM_Class	Operations Disturbance	Construction Disturbance	Grand Total
L1UB	Unknown	0.033		0.033
PAB	Unknown	0.029	0.004	0.033
PEM	Depressional	0.004	0.003	0.007
	Riverine Flow Through	0.015	0.021	0.036
	Slope	0.757	0.15	0.907
	Unknown	1.36	1.528	2.888
PFO	Riverine Flow Through	0.001		0.001
	Unknown	0.15	0.006	0.156
PSS	Unknown	0.678	25.203	25.881
PUS	Unknown	0.026	0.057	0.083
Grand Total		3.053	26.972	30.025

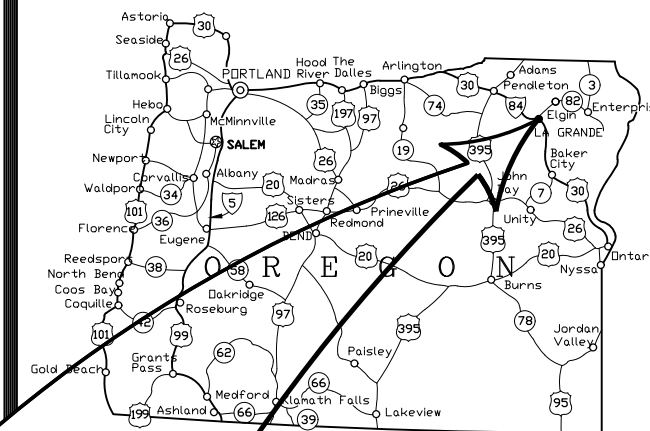
JPA- Stream Impacts

Row Labels	Count of Feature_ID	Sum of TT_Acres
Operations Disturbance		
Ephemeral	59	0.14
Intermittent	295	1.01
Perennial	103	0.53
Grand Total	457	1.68

APPENDIX B
OREGON RAPID WETLAND ASSESSMENT PROTOCOL
DATA SHEETS

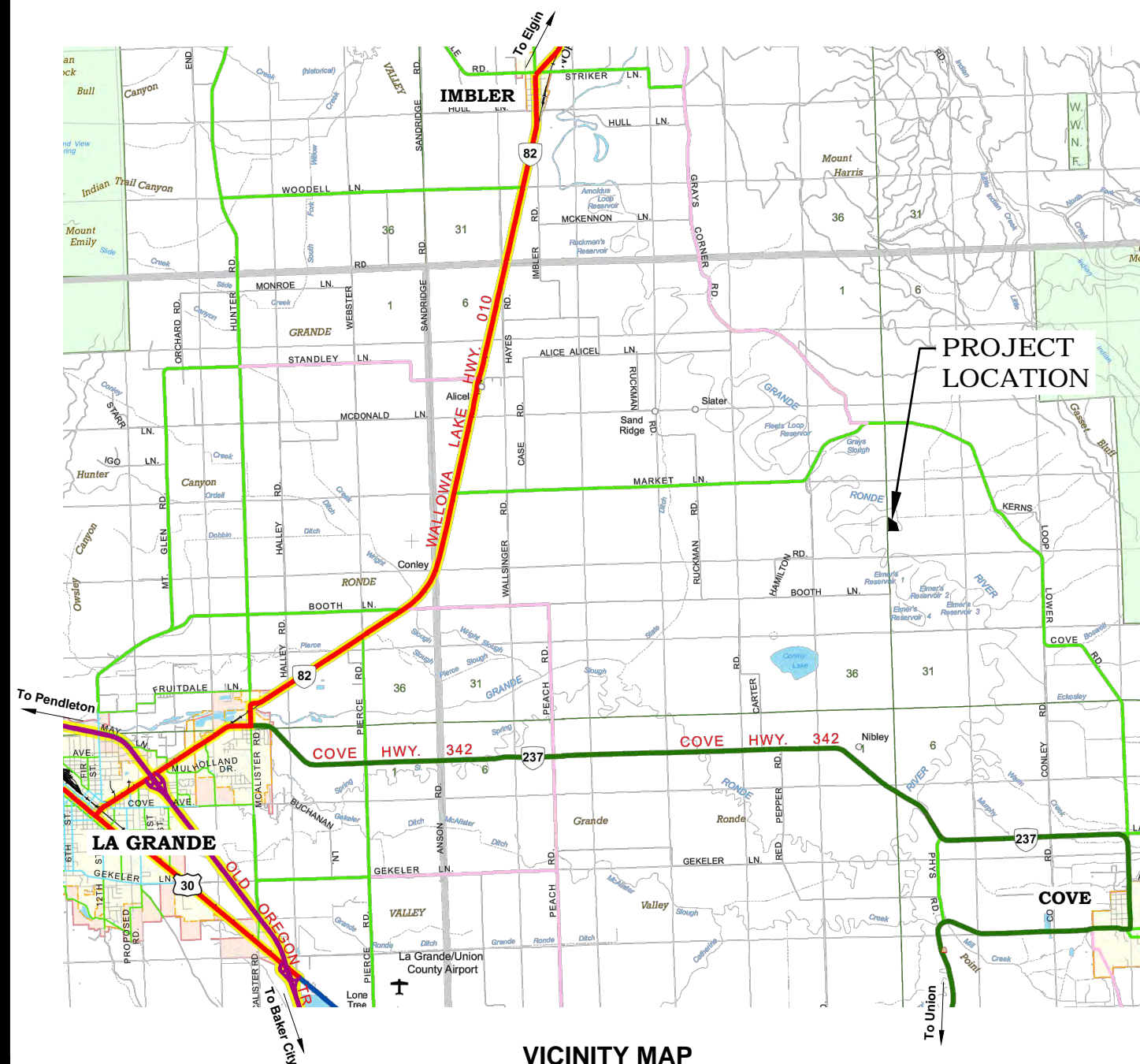
BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN

UNION COUNTY, OREGON
T2S R39E SECTION 24 AND T2S R40E SECTION 19
2016



INDEX

- COVER
- 1. LEGEND AND EXISTING SITE PLAN
- 2. PROPOSED SITE PLAN
- 3. GRADING PLAN
- 4. WETLAND MITIGATION SECTIONS
- 5. WOOD HABITAT STRUCTURE
- 6. PLANTING PLAN
- 7. PLANTING DETAILS
- 8. SITE ACCESS AND STAGING PLAN



VICINITY MAP
N.T.S.

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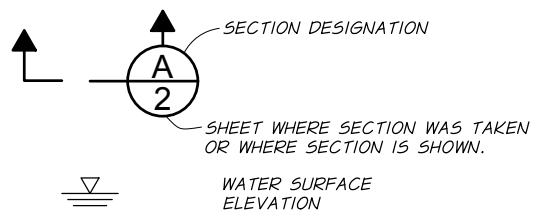


PLAN LEGEND

	EXISTING	PROPOSED
INDEX CONTOUR		
INTERMEDIATE CONTOUR		
FENCE LINE/GATE		
SIDE CHANNEL CENTERLINE		
ORDINARY HIGH WATER		
CREEK CENTERLINE		
EDGE OF GRAVEL		
STUDY AREA		
TAX LOT BOUNDARY		

MONITORING WELL		
CULVERT		
PALUSTRINE EMERGENT WETLAND		
PALUSTRINE FORESTED WETLAND		
PALUSTRINE SCRUB-SHRUB WETLAND		
ENHANCED PALUSTRINE EMERGENT WETLAND		
WOOD HABITAT STRUCTURE		
FILL AREA		
CUT AREA		

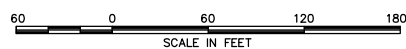
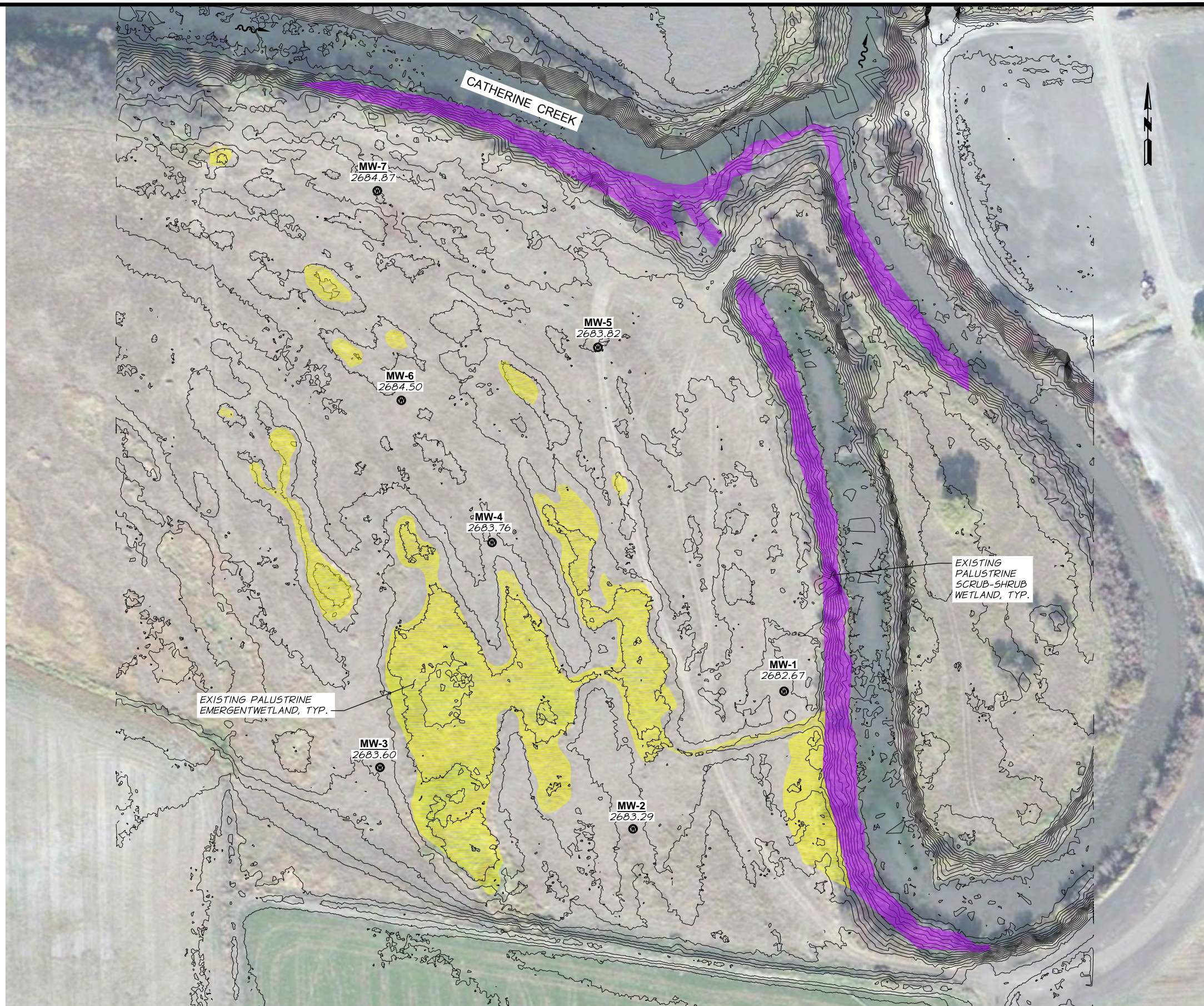
DRAFTING



DESIGN CRITERIA

GRANDE RONDE RIVER OHW DEPTH* 2685.6

*OHW DEPTH IS BASED ON A HYDRAULIC MODEL PREPARED BY THE BUREAU OF RECLAMATION IN 2011 AND CORRESPONDS TO THE 1.5 YEAR FLOW EVENT.



THIS DRAWING HAS BEEN REDUCED 50%.
ADJUST SCALE ACCORDINGLY.
BARSCALE SHOWN IS ACCURATE.

REVISION	BY	DATE	HORZ. SCALE	VERT. SCALE
DESIGNED BY W. RICE			1"=60'	
DRAWN BY L. WILLHITE				
REVIEWED BY C. HUTCHINS				

XREFS: 81-47-060G-TBLOCK.DWG
JOB NUMBER 81-47
ACAD FILE: 81-40-060C-101xxx.dwg

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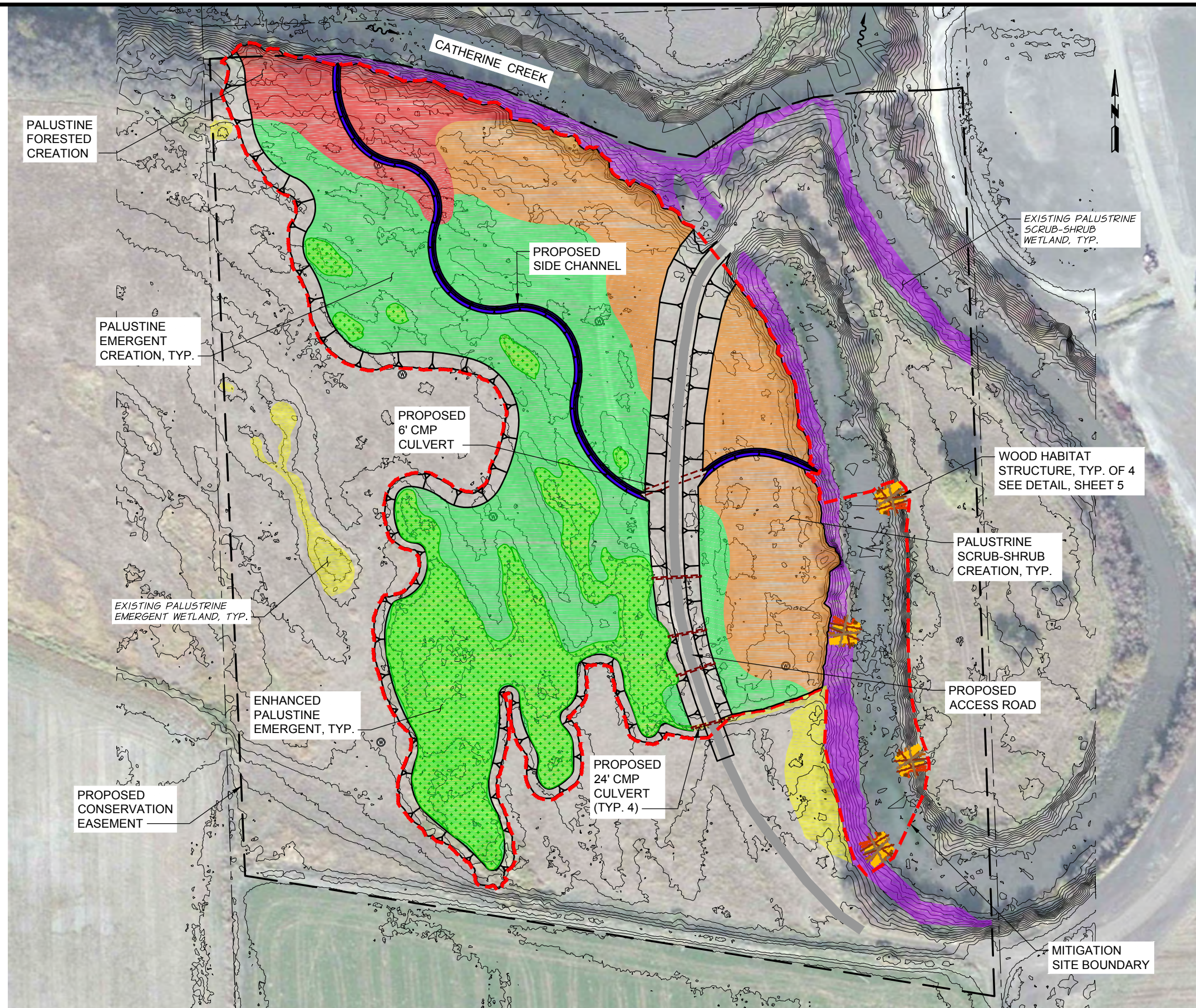
**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
COMPENSATORY WETLAND AND
NON-WETLAND MITIGATION PLAN**

LEGEND AND EXISTING SITE PLAN

SHEET

1

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LEGEND

- EXISTING PALUSTRINE EMERGENT WETLAND
- EXISTING PALUSTRINE SCRUB-SHRUB WETLAND
- PALUSTRINE EMERGENT WETLAND
- PALUSTRINE FORESTED WETLAND
- PALUSTRINE SCRUB-SHRUBS WETLAND
- ENHANCED PALUSTRINE EMERGENT WETLAND

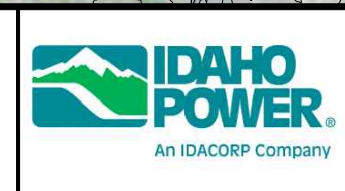
PROJECT OBJECTIVE

THE PROJECT OBJECTIVE IS TO PROVIDE MITIGATION FOR WETLAND AND NON-WETLAND IMPACTS THAT OCCUR AT VARIOUS SITES ALONG THE PROPOSED BOARDMAN TO HEMMINGWAY TRANSMISSION LINE PROJECT SITE BOUNDARY THROUGH THE CREATION OF SIMILAR FUNCTIONING WETLANDS AND ENHANCEMENT OF NON-WETLAND HABITAT AT A SINGLE MITIGATION SITE IN THIS REACH OF CATHERINE CREEK.

<p>SCALE IN FEET</p>		<p>HORZ. SCALE 1"=60'</p> <p>VERT. SCALE</p>	
DESIGNED BY	W. RICE	XREFS:	81-47-060G-TBLOCK.DWG
DRAWN BY	L. WILLHITE	JOB NUMBER	81-47
REVIEWED BY	C. HUTCHINS	ACAD FILE:	81-40-060C-102xxx.dwg
DATE		DATE	2016

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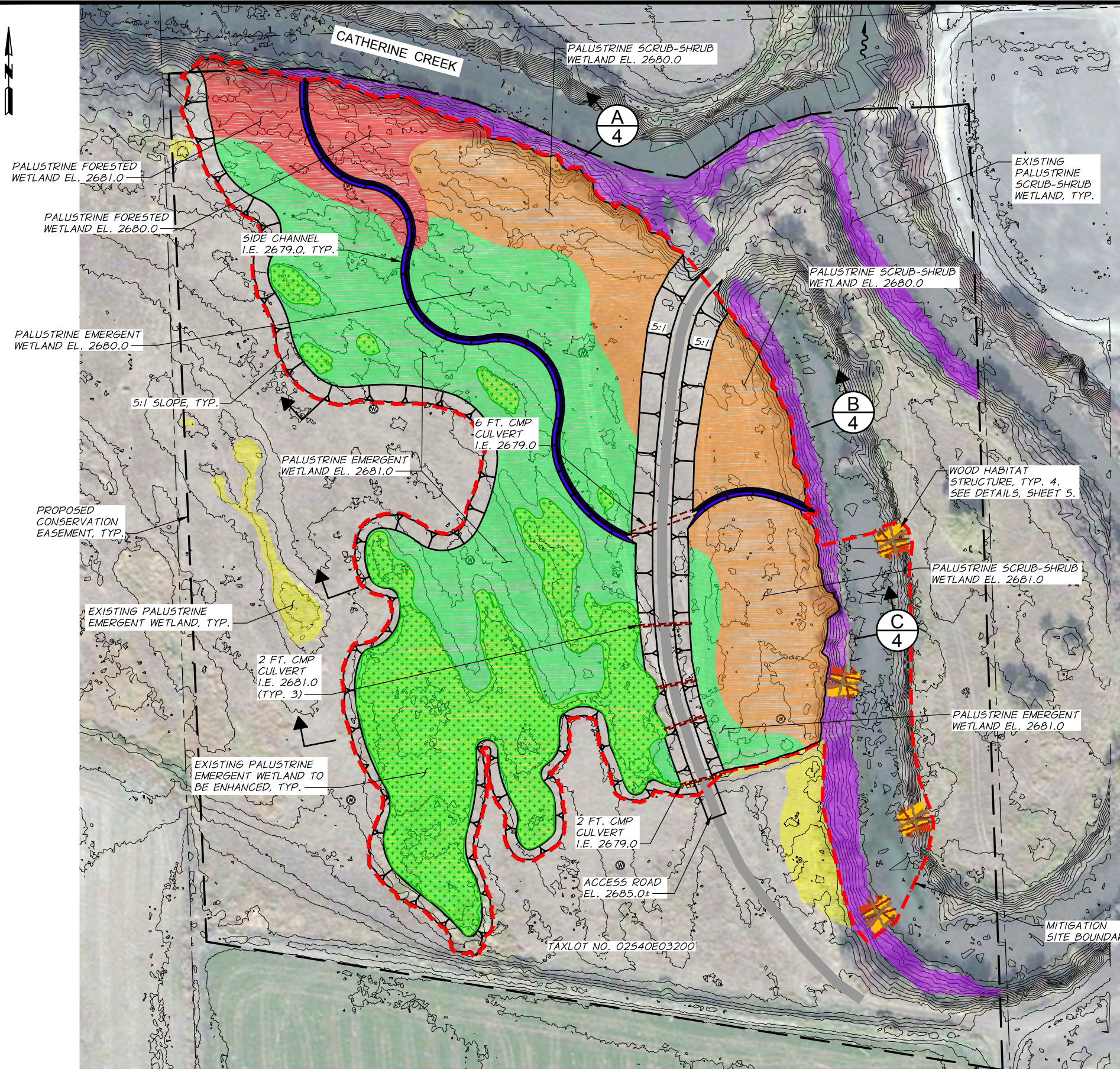


**BOARDMAN TO HEMMINGWAY
TRANSMISSION LINE PROJECT
COMPENSATORY WETLAND AND
NON-WETLAND MITIGATION PLAN**

PROPOSED SITE PLAN

SHEET
2

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WETLAND AREA (ACRES)			
	EXISTING	CREATED	ENHANCED
PALUSTRINE EMERGENT	0.33	2.50	1.45
PALUSTRINE FORESTED	-	0.57	-
PALUSTRINE SCRUB-SHRUB	1.01	1.69	-
TOTAL	1.34	4.76	1.45

- NOTES**
1. FINISH GRADES SHALL VARY ±6 INCHES TO CREATE A MICROTOPOLOGY THROUGHOUT THE WETLAND SITE AS DIRECTED BY A WETLAND SPECIALIST DURING CONSTRUCTION.
 2. ALL SURPLUS MATERIAL GENERATED ON SITE SHALL BE SPOILED IN ADJACENT LAND OWNER'S FIELD. IT IS NOT ANTICIPATED THAT ANY MATERIAL BE EXPORTED FROM THE SITE.

REVISION	BY	DATE	HORZ. SCALE 1"=60'	VERT. SCALE
DESIGNED BY M. LEES			JOB NUMBER 81-47	DATE 2016
DRAWN BY D. CHRISTMAN			ACAD FILE 81-40-060C-120GRAD.dwg	
REVIEWED BY C. HUTCHINS				

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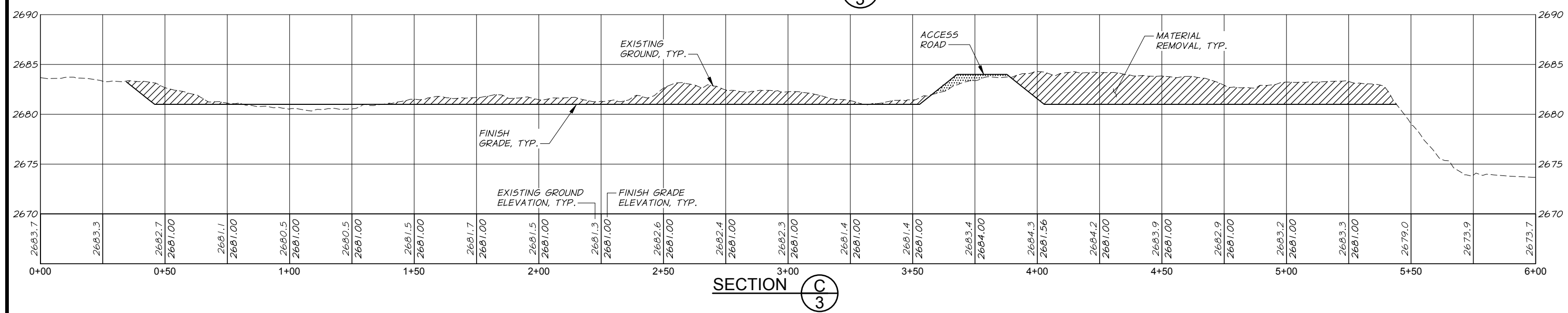
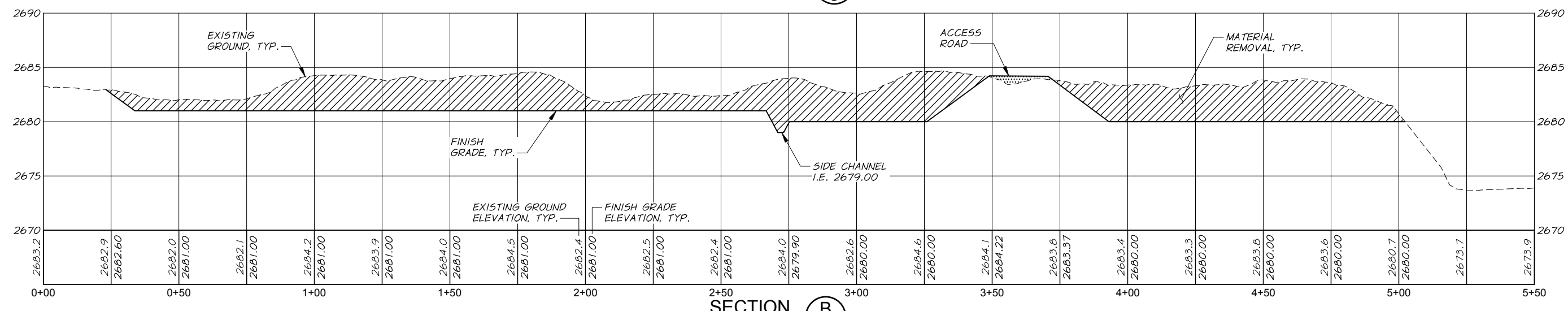
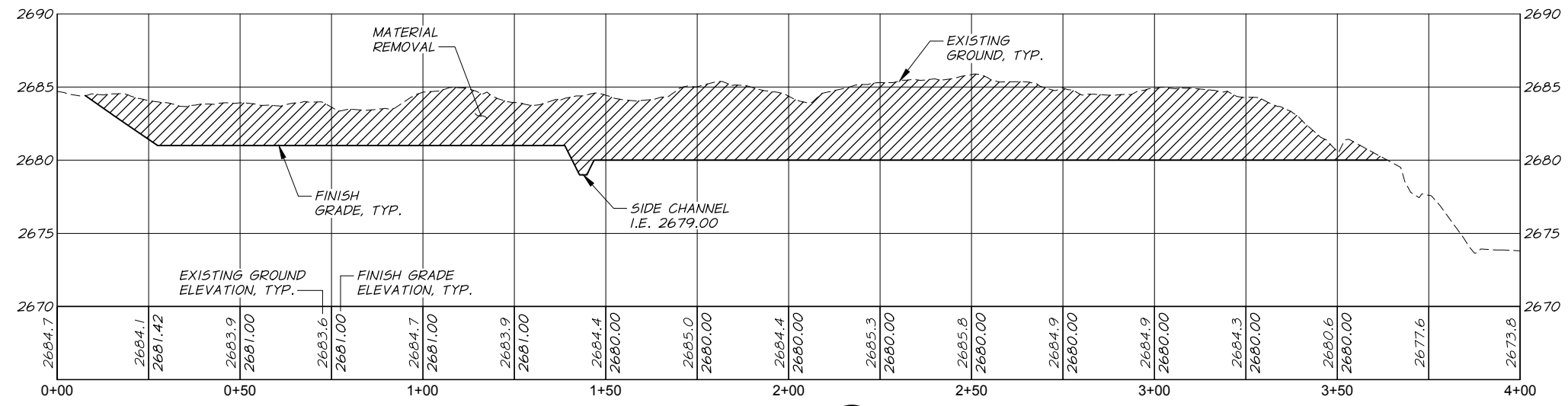
**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
COMPENSATORY WETLAND AND
NON-WETLAND MITIGATION PLAN**

GRADING PLAN

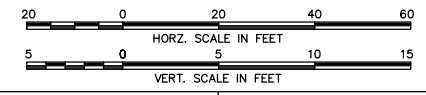
SHEET

3

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DESIGNED BY	M. LEES	DATE	
DRAWN BY	D. CHRISTMAN	DATE	2016
REVIEWED BY	C. HUTCHINS	DATE	
XREFS: 81-47-060G-TBLOCK.DWG		JOB NUMBER	81-47
		ACAD FILE	81-40-060C-301xxx.dwg



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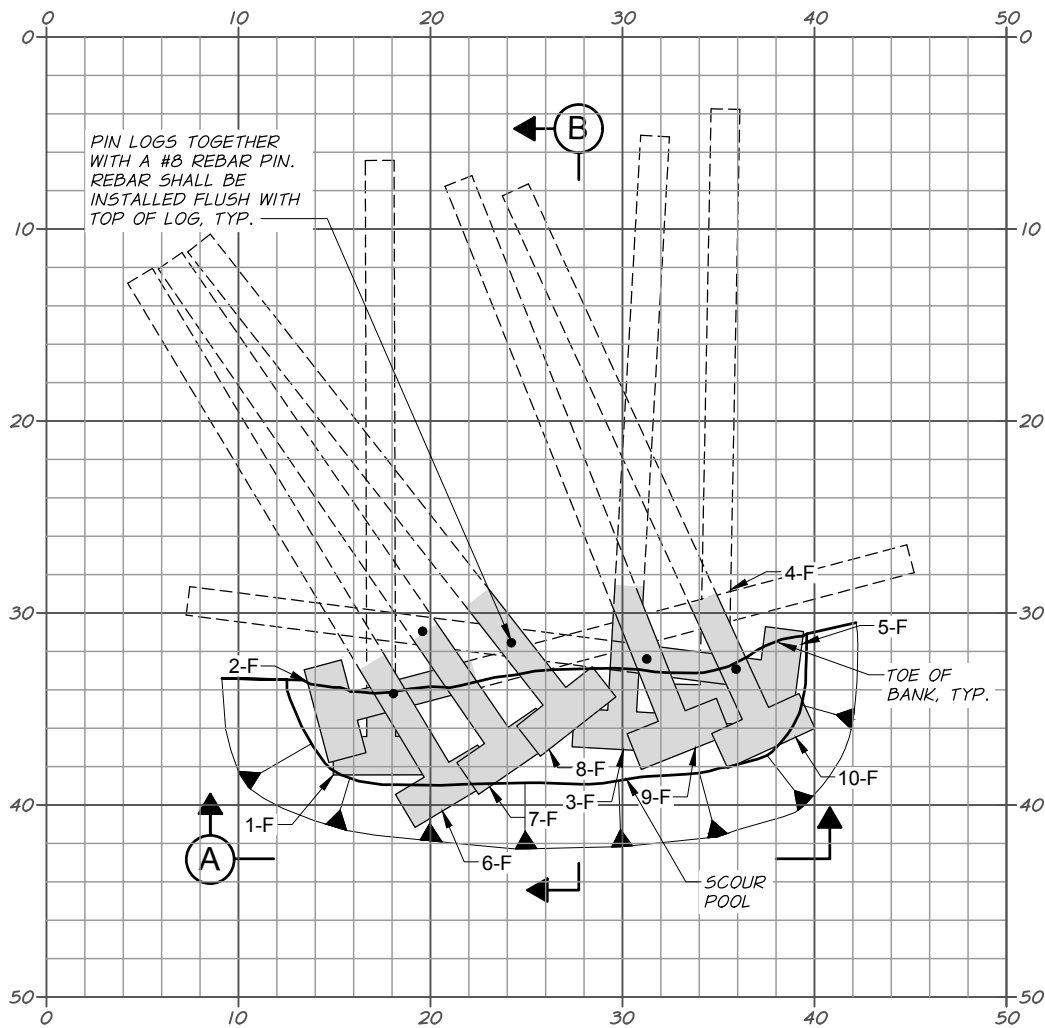
**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
COMPENSATORY WETLAND AND
NON-WETLAND MITIGATION PLAN**

WETLAND MITIGATION SECTIONS

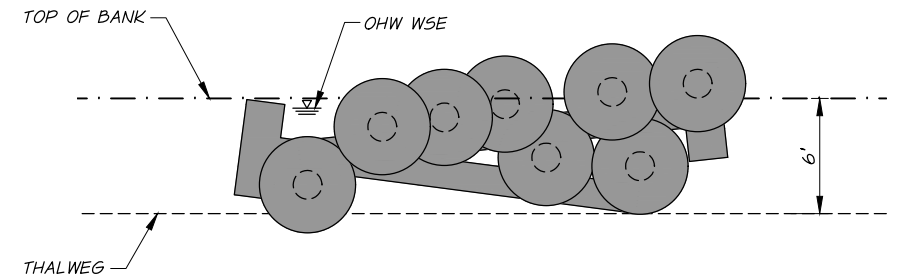
SHEET

4

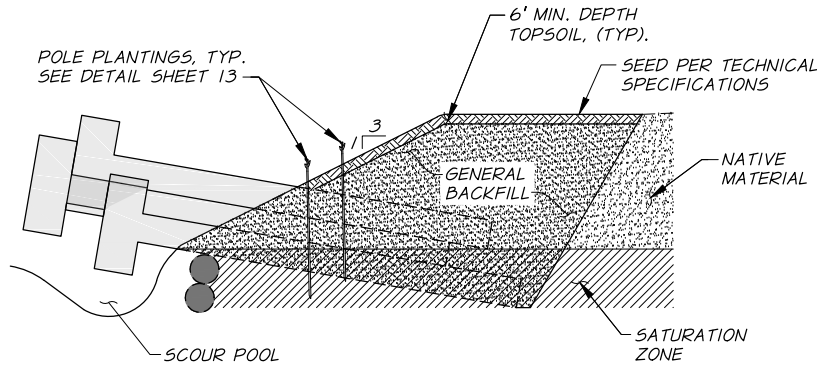
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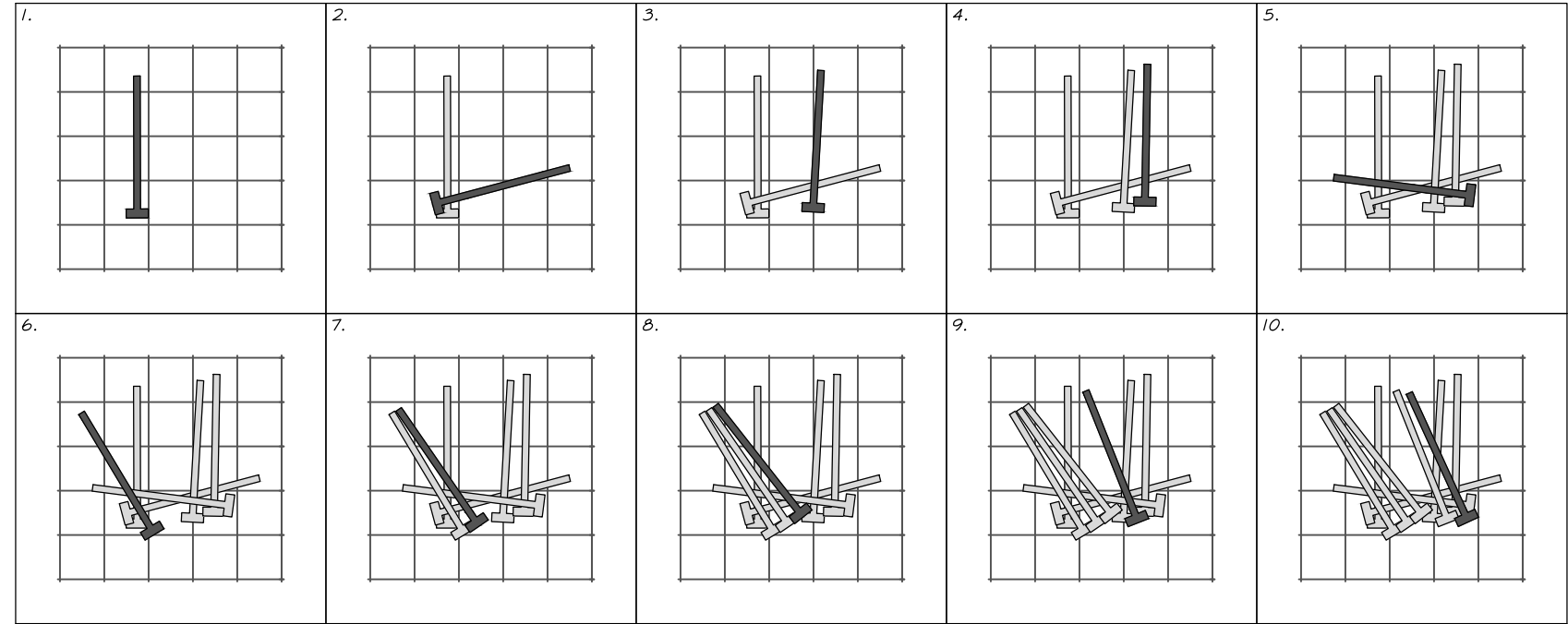
SMALL WOOD HABITAT STRUCTURE
SCALE: 1"=5'



SECTION A
SCALE: 1"=5'



SECTION B
SCALE: 1"=5'



SMALL WOOD HABITAT STRUCTURE LOG PLACEMENT SEQUENCING
SCALE: 1"=20'

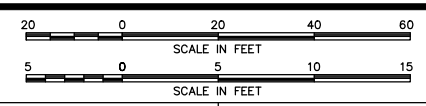
SMALL WOOD HABITAT STRUCTURE MATERIAL SCHEDULE			
LOG	DESCRIPTION	QTY. EACH	TOTAL QTY. FOR 4 STRUCTURES
TREE TYPE B	JUNIPER 20 FT. X 10"-14" DBH W/ RW	4	16
LOG TYPE F	30 FT. X 18"-24" DBH W/ 5' DIA. RW	10	40
RACKING MATERIAL C	10-20 FT. X 6"-10" DBH	10 *	40
REBAR PIN	#8	5	20

* IN ADDITION TO THE RACKING MATERIAL, THE CONTRACTOR SHALL IMPORT THE TOPS AND LIMBS OF THE LOG TYPES D, AND E, AND USE THIS AS SLASH.

CONSTRUCTION NOTES

- CONTRACTOR SHALL BACKFILL AROUND LOGS WITH A COMBINATION OF GENERAL BACKFILL AND RACKING MATERIAL.
- PROVIDE RACKING MATERIAL BETWEEN EACH LAYER AS DIRECTED BY THE ENGINEER.
- CONTRACTOR SHALL APPLY WATER TO THE BACKFILL PERIODICALLY FOR COMPACTION AND TO FORCE MATERIAL INTO VOIDS.
- FOR ALL LOGS KEYED INTO BANKS MORE THAN TWO THIRDS OF THE LENGTH MUST BE BURIED.
- TOP OF BACKFILL AREA SHALL BE COVERED WITH TOPSOIL WITH A MINIMUM THICKNESS OF 6".
- FINAL INSTALLATION OF THE SMALL WOOD HABITAT STRUCTURE SHALL BE SUBJECT TO THE APPROVAL OF THE ENGINEER.
- DETAILS SHOWN ARE FOR RIVER RIGHT SITUATION. RIVER LEFT INSTALLATION TO BE MIRRORED.
- AT REBAR PIN LOCATIONS, THE CONTRACTOR SHALL DRILL A PILOT HOLE APPROXIMATELY 7/8" DIAMETER. THE PIN SHALL BE DRIVEN THROUGH THE HOLE FITTING SNUGLY AND LEAVING NO VOID SPACE BETWEEN THE PIN AND THE PILOT HOLE.
- ALL SAWCUT ENDS OF LOGS SHALL BE CHEWED OR FRAYED PRIOR TO PLACEMENT.
- CONTRACTOR SHALL EXCAVATE POOLS SHOWN UNDER THE DIRECTION OF THE ENGINEER.

DESIGNED BY W. RICE	DATE	HORZ. SCALE AS SHOWN	VERT. SCALE AS SHOWN
DRAWN BY L. WILLHITE	XREFS: 81-47-060G-TBLOCK.DWG	JOB NUMBER 81-47	DATE 2016
REVIEWED BY C. HUTCHINS		ACAD FILE 81-40-060S-301xxx.dwg	



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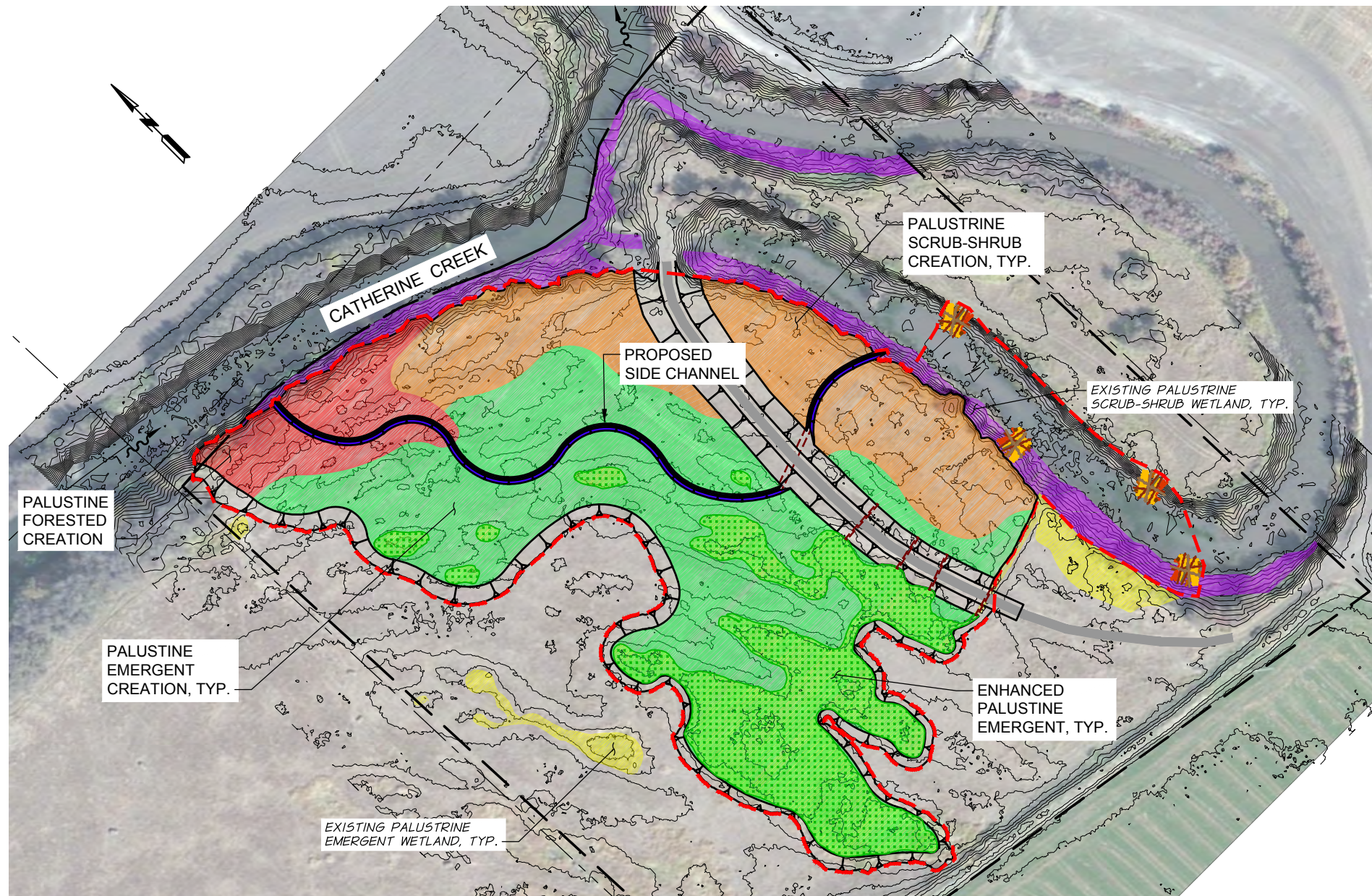


BOARDMAN TO HEMINGWAY TRANSMISSION LINE PROJECT
COMPENSATORY WETLAND AND NON-WETLAND MITIGATION PLAN

WOOD HABITAT STRUCTURE

SHEET

5



LEGEND

EXISTING PALUSTRINE EMERGENT WETLAND	[Yellow Box]
EXISTING PALUSTRINE SCRUB-SHRUB WETLAND	[Purple Box]
PALUSTRINE EMERGENT WETLAND	[Light Green Box]
PALUSTRINE FORESTED WETLAND	[Red Box]
PALUSTRINE SCRUB-SHRUBS WETLAND	[Orange Box]
ENHANCED PALUSTRINE EMERGENT WETLAND	[Green Box with Dots]

- NOTES:**
1. ALL WETLAND AREAS BETWEEN PLANTINGS SHALL BE BROADCAST SEEDED PER TECHNICAL SPECIFICATIONS.
 2. ALL DISTURBED AREAS SHALL BE BROADCAST SEEDED PER TECHNICAL SPECIFICATIONS.

PLANTING PLAN

PALUSTRINE FORESTED WETLAND SPECIES

Species	Stock Type	Age	Size	Spacing	Number	Wetland Ind. Status
1 Coyote Willow (<i>Salix exigua</i> Nutt.)	Cuttings	2 years	3/4-inch minimum diameter	4x4 feet	300	FACW
2 Peachleaf Willow (<i>Salix amygdaloides</i> Anders.)	Cuttings	2 years	3/4-inch minimum diameter	10x10 feet	270	FACW
3 Golden Currant (<i>Ribes aureum</i> Pursh.)	Seedling	1 to 2 years	18 to 24 inches	6x6 feet	200	FAC
4 Wood's Rose (<i>Rosa woodsii</i> Lindl.)	Seedling	1 to 2 years	18 to 24 inches	6x6 feet	200	FACU
5 Black Cottonwood (<i>Populus balsamifera</i>)	Cuttings	2 years	3/4-inch minimum diameter	10x10 feet	270	FAC
Total (Approximately 330 Linear Feet of Streambank to be Planted – 0.57 acres)					1240	

PALUSTRINE EMERGENT WETLAND SPECIES

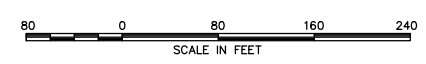
Grass, Sedge, and Rush Species Seeding – PLS¹

Cultivar	Species	% Mix	Rate PLS/Acre	Acres	Lbs. PLS	Wetland Indicator Status
	Tufted Hairgrass (<i>Deschampsia cespitosa</i>)	10	1	4.0	4.0	FACW
Magna	Basin Wildrye (<i>Leymus cinereus</i>)	40	4	4.0	16.0	FAC
CJ Strike	Creeping Spikerush (<i>Eleocharis palustris</i> L.)	15	1.5	4.0	6.0	OBL
	Swordleaf Rush (<i>Juncus ensifolius</i> Wikstr.)	15	1.5	4.0	6.0	FACW
	Water Sedge (<i>Carex aquatilis</i> Wahlenb.)	20	2	4.0	8.0	OBL

PALUSTRINE SCRUB-SHRUB WETLAND SPECIES

Species	Stock Type	Age	Size	Spacing	Number	Wetland Ind. Status
1 Coyote Willow (<i>Salix exigua</i> Nutt.)	Cuttings	2 years	3/4-inch minimum diameter	4x4 feet	5,890	FACW
2 Peachleaf Willow (<i>Salix amygdaloides</i> Anders.)	Cuttings	2 years	3/4-inch minimum diameter	10x10 feet	1,325	FACW
3 Golden Currant (<i>Ribes aureum</i> Pursh.)	Seedling	1 to 2 years	18 to 24 inches	6x6 feet	3,090	FAC
4 Wood's Rose (<i>Rosa woodsii</i> Lindl.)	Seedling	1 to 2 years	18 to 24 inches	6x6 feet	3,090	FACU
5 Black Cottonwood (<i>Populus balsamifera</i>)	Cuttings	2 years	3/4-inch minimum diameter	10x10 feet	1,325	FAC
Total (Approximately 750 Linear Feet of Streambank to be Planted and 1.69 landlocked acres)					14,720	

DESIGNED BY	W. RICE	DATE	2016
DRAWN BY	L. WILLHITE	ACAD FILE	81-40-060C-402xxx.dwg
REVIEWED BY	C. HUTCHINS		



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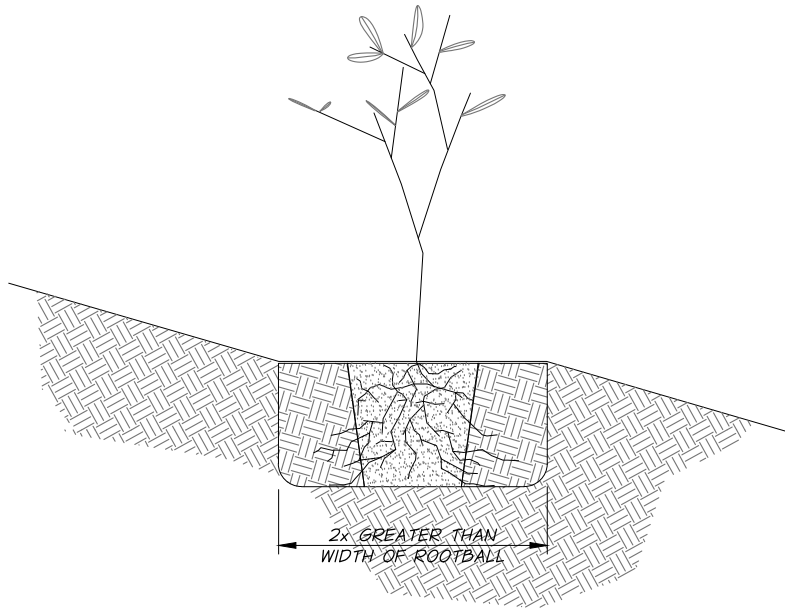
**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
COMPENSATORY WETLAND AND
NON-WETLAND MITIGATION PLAN**

PLANTING PLAN

SHEET

6

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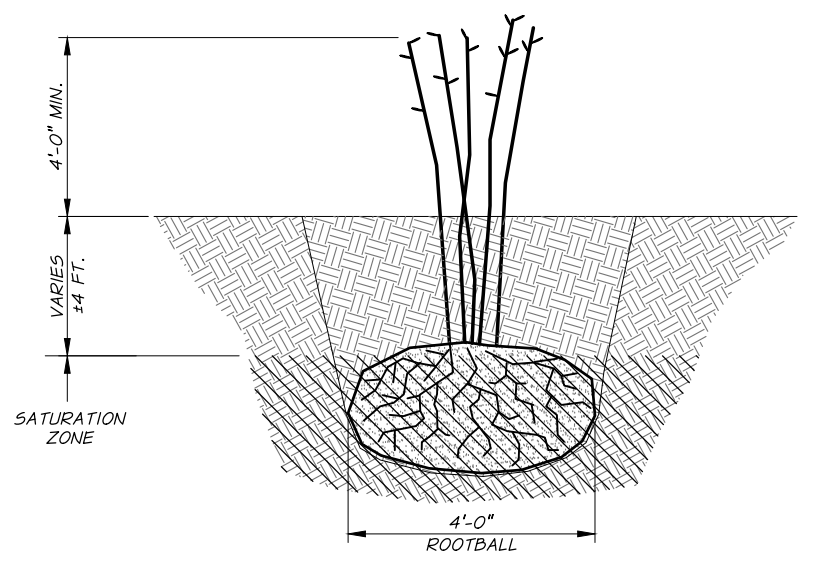


CONTAINER PLANT DETAIL

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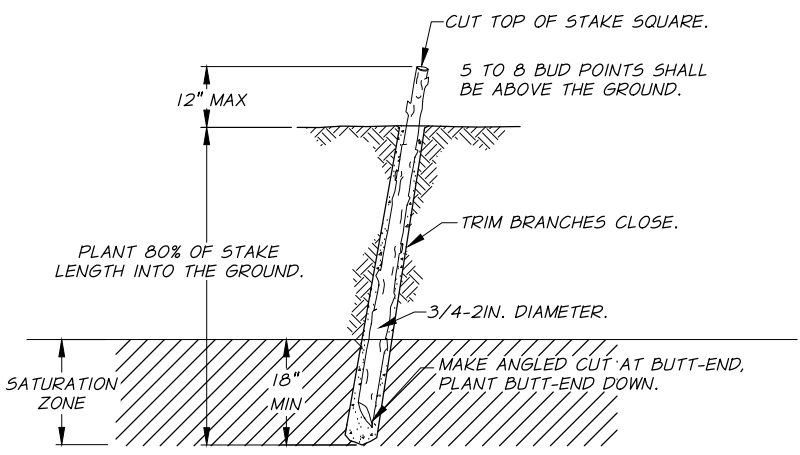
CONTAINER PLANT INSTALLATION NOTES

1. PRIOR TO INSTALLATION OF CONTAINER PLANT, CLEANLY PRUNE ANY BROKEN BRANCHES AND SCARIFY OUTER 1" OF ROOTBALL. CLEANLY PRUNE BROKEN, DEAD, OR DISEASED ROOTS. ROOTBOUND PLANTS SHALL BE REJECTED.
2. EXCAVATE CIRCULAR PLANTING HOLE WITH VERTICAL SIDES. SCARIFY SIDES AND BOTTOM OF PLANTING HOLE.
3. PLACE ROOTBALL ON UNDISTURBED NATIVE SOIL AT BASE OF PLANTING HOLE AND SPREAD ROOTS OUT TO SIDES OF HOLE. CLEANLY TRIM ANY ROOTS THAT ARE TOO LONG TO LAY STRAIGHT IN PLANTING HOLE. PLANTS SHALL BE UPRIGHT, PLUMB, AND TOP OF ROOTBALL SHALL BE EVEN WITH FINISH GRADE. WHEN PLANTING ON SLOPES, CREATE LEVEL PLANTING SURFACE TO ENSURE COVER OF ROOTS ON DOWNHILL SIDE OF PLANT.
4. BACKFILL PLANTING HOLE WITH SOIL EXCAVATED FROM PLANTING HOLE AND TAMP SOIL AROUND ROOTS. ANY TRASH OR DEBRIS FOUND IN EXCAVATED SOIL SHALL NOT BE USED TO BACKFILL THE PLANTING HOLE. BACKFILL SOIL SHALL MAKE GOOD CONTACT WITH THE ROOTBALL, LEAVING NO VOIDS.
5. PLANTS SHALL BE PLANTED IN CLUSTERS USING TYPICAL SPACING SHOWN ON THE SCHEDULE WHILE OTHER AREAS ARE LEFT UNPLANTED TO ALLOW FOR DISTRIBUTION OF THE PLANTS THROUGHOUT THE PLANTING AREA.
6. WITHIN 4 HOURS OF PLANT INSTALLATION, THOROUGHLY WATER IN EACH INSTALLED PLANT.



WILLOW CLUMP INSTALLATION NOTES:

1. WILLOW CLUMPS SHALL BE PLACED AT THE LOCATIONS SHOWN ON FIGURE 1.
2. HARVEST THE ENTIRE LIVE WILLOW CLUMP INCLUDING THE ABOVEGROUND STEMS AND THE BELOWGROUND ROOTS.
3. USE WILLOWS THAT ARE YOUNG AND VIGOROUS, RANGE IN HEIGHT FROM 8 TO 15 FEET, AND ARE APPROXIMATELY THE DIAMETER OF A 4-FOOT BACKHOE BUCKET.
4. START THE HOLE FOR THE WILLOW CLUMP BY DIGGING APPROXIMATELY 10 INCHES AWAY FROM THE STEMS AND DIG DOWN APPROXIMATELY 2 FEET IN ORDER TO GET AS MUCH OF THE ROOT MASS AS POSSIBLE.
5. TRANSPORT THE WILLOW CLUMP TO THE PLANTING LOCATION IMMEDIATELY UPON DIGGING THE WILLOW CLUMP AND PLANT IT SO THE WILLOW CLUMP DOES NOT DRY OUT. TARPING OF THE WILLOW CLUMP MAY BE NECESSARY IF TRANSPORTING THE CLUMP A LONG DISTANCE AND IF THE WEATHER IS SUNNY AND HOT.
6. PRE-DIG THE PLANTING LOCATION FOR THE WILLOW CLUMP AND EXCAVATE DOWN TO THE SOIL SATURATION ZONE BUT NOT INTO THE GROUNDWATER TABLE.
7. PLACE THE WILLOW CLUMP INTO THE PLANTING HOLE AND BACKFILL IN AND AROUND THE WILLOW CLUMP WITH SOIL AND WATER TO REMOVE AIR POCKETS AROUND THE CLUMP.
8. A MINIMUM 4 TO 5 FEET OF THE WILLOW STEMS SHALL PROTRUDE ABOVE THE FINISHED GROUND SURFACE.
9. CUT OFF ABOUT ONE-THIRD TO ONE-HALF OF THE WILLOW TOPS STRAIGHT ACROSS AT THE FINISHED GROUND SURFACE ONCE PLACED AND BACKFILLED.



NOTES:

1. HARVEST AND PLANT STAKES DURING THE DORMANT SEASON.
2. USE HEALTHY, STRAIGHT AND LIVE WOOD AT LEAST 1 YEAR OLD.
3. MAKE CLEAN CUTS AND DO NOT DAMAGE STAKES OR SPLIT ENDS DURING INSTALLATION, USE A PILOT BAR OR OTHER APPROVED METHOD IN FIRM SOILS.
4. CUTTINGS HARVESTED FRESH AT THE TIME OF INSTALLATION SHALL BE SOAKED FOR A MINIMUM OF 24 HOURS PRIOR TO INSTALLATION PLANTING. CUTTINGS HARVESTED AND STORED SHALL BE SOAKED FOR A MINIMUM OF 10 DAYS PRIOR TO PLANTING.
5. TAMP THE SOIL AROUND THE STAKE.
6. EXTEND STAKES IN TO WATER SATURATION ZONE.
7. SEE APPROVED SPECIES, THIS SHEET.

TYPICAL PLANTING DETAIL

N.T.S.

APPROVED BRUSH SPECIES

- SALIX EXIGUA (COYOTE WILLOW)
- SALIX LASIOLEPSIS (ARROYO WILLOW)
- CORNUS SERICEA (REDSIER DOGWOOD)

WILLOW CLUMP DETAIL

N.T.S.

DESIGNED BY	W. RICE	XREFS:	81-47-060G-TBLOCK.DWG
DRAWN BY	L. WILLHITE	JOB NUMBER	81-47
REVIEWED BY	C. HUTCHINS	ACAD FILE:	81-40-060C-501xxx.dwg
REVISION		BY	
		DATE	
		HORZ. SCALE	NONE
		VERT. SCALE	

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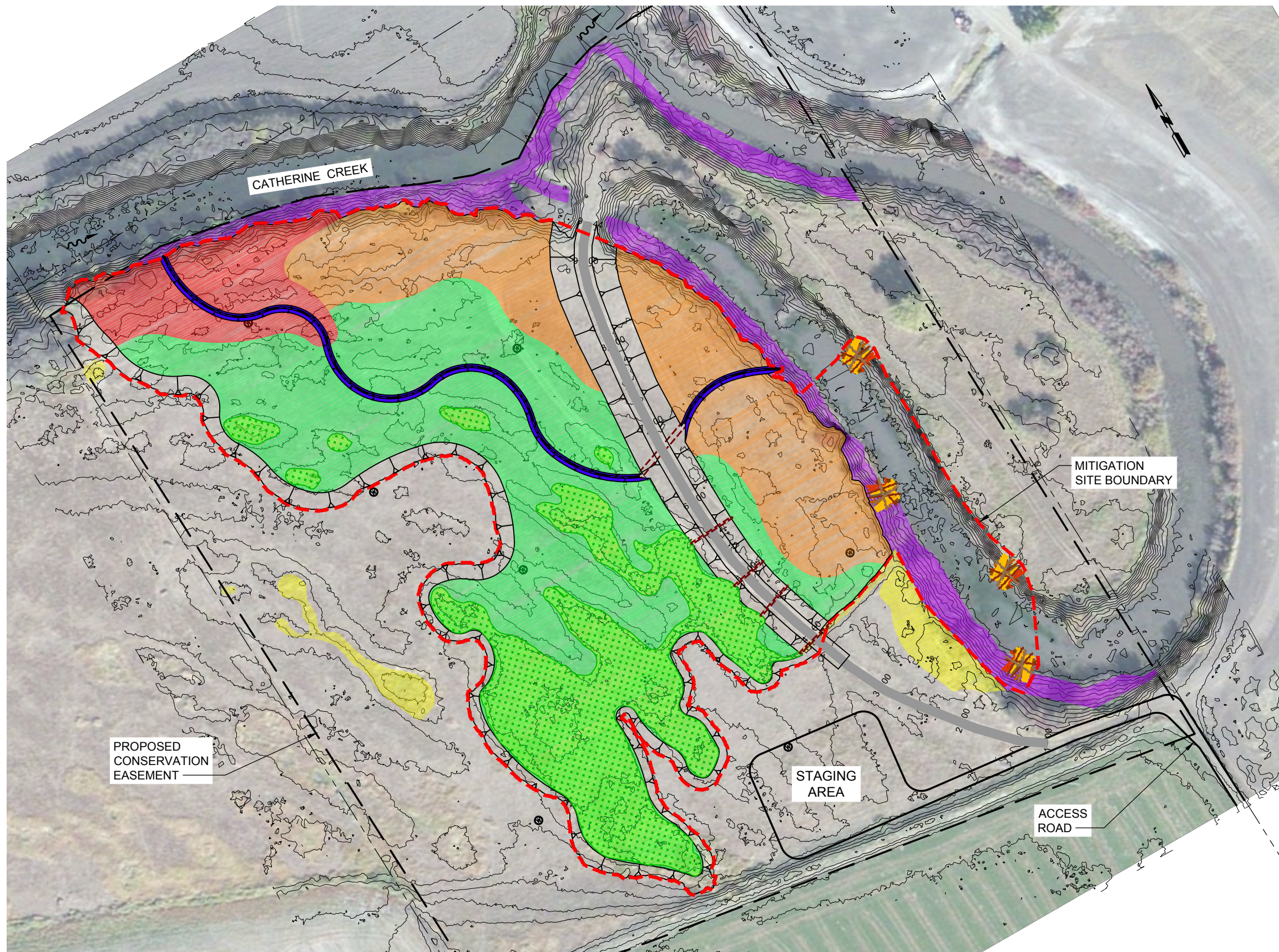
**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT
COMPENSATORY WETLAND AND
NON-WETLAND MITIGATION PLAN**

PLANTING DETAILS

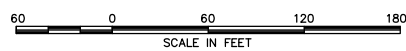
SHEET

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DESIGNED BY W. RICE			JOB NUMBER 81-47	DATE 2016
DRAWN BY L. WILLHITE			ACAD FILE: 81-40-060C-103xxx.dwg	
REVIEWED BY C. HUTCHINS				



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**BOARDMAN TO HEMINGWAY
TRANSMISSION LINE PROJECT**
**COMPENSATORY WETLAND AND
NON-WETLAND MITIGATION PLAN**

SITE ACCESS AND STAGING PLAN

SHEET

8

APPENDIX C
ADDITIONAL DOCUMENTS

PEM Representative Sites Averaged Functions and Values Scores

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	2.09	3.25
Water Quality Group (WQ)	7.12	5.54
Carbon Sequestration (CS)	2.50	
Fish Support Group (FISH)	3.68	4.10
Aquatic Support Group (AQ)	6.60	8.14
Terrestrial Support Group (TERR)	5.80	7.73
Public Use & Recognition (PU)		1.61
Provisioning Services (PS)		2.00

PFO/PSS Representative Sites Averaged Functions and Values Scores

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	0.90	3.42
Water Quality Group (WQ)	7.59	5.51
Carbon Sequestration (CS)	2.60	
Fish Support Group (FISH)	4.06	3.74
Aquatic Support Group (AQ)	6.79	7.98
Terrestrial Support Group (TERR)	5.58	7.89
Public Use & Recognition (PU)		1.46
Provisioning Services (PS)		2.00

Bapro_594 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	2.83	5.00
Water Quality Group (WQ)	7.78	5.94
Carbon Sequestration (CS)	2.91	
Fish Support Group (FISH)	4.57	3.31
Aquatic Support Group (AQ)	5.84	8.00
Terrestrial Support Group (TERR)	3.84	8.00
Public Use & Recognition (PU)		3.57
Provisioning Services (PS)		2.00

MAC1 - Alkaline (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	1.45	2.71
Water Quality Group (WQ)	8.33	5.07
Carbon Sequestration (CS)	2.89	
Fish Support Group (FISH)	1.73	3.36
Aquatic Support Group (AQ)	7.15	8.67
Terrestrial Support Group (TERR)	5.82	8.00
Public Use & Recognition (PU)		0.95
Provisioning Services (PS)		2.00

BA-G-145 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	0.00	2.50
Water Quality Group (WQ)	6.40	6.36
Carbon Sequestration (CS)	2.78	
Fish Support Group (FISH)	1.34	2.59
Aquatic Support Group (AQ)	6.99	8.00
Terrestrial Support Group (TERR)	5.96	8.00
Public Use & Recognition (PU)		0.00
Provisioning Services (PS)		2.00

BA-G-115-117 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	1.64	2.50
Water Quality Group (WQ)	6.94	5.53
Carbon Sequestration (CS)	2.56	
Fish Support Group (FISH)	4.87	4.73
Aquatic Support Group (AQ)	6.67	8.00
Terrestrial Support Group (TERR)	5.77	8.00
Public Use & Recognition (PU)		1.33
Provisioning Services (PS)		2.00

BA-G-148 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	0.00	2.50
Water Quality Group (WQ)	3.33	6.53
Carbon Sequestration (CS)	2.36	
Fish Support Group (FISH)	5.20	3.10
Aquatic Support Group (AQ)	6.86	8.00
Terrestrial Support Group (TERR)	5.61	8.00
Public Use & Recognition (PU)		0.00
Provisioning Services (PS)		2.00

BA-G-210.1 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	0.00	4.58
Water Quality Group (WQ)	5.83	6.11
Carbon Sequestration (CS)	2.29	
Fish Support Group (FISH)	6.07	0.00
Aquatic Support Group (AQ)	6.56	8.00
Terrestrial Support Group (TERR)	6.88	8.00
Public Use & Recognition (PU)		1.33
Provisioning Services (PS)		2.00

Clover Creek 2012 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	3.45	3.33
Water Quality Group (WQ)	7.89	5.12
Carbon Sequestration (CS)	2.72	
Fish Support Group (FISH)	1.57	4.07
Aquatic Support Group (AQ)	7.33	7.33
Terrestrial Support Group (TERR)	6.51	6.67
Public Use & Recognition (PU)		2.74
Provisioning Services (PS)		2.00

MA-G-207 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	0.00	3.33
Water Quality Group (WQ)	10.00	6.33
Carbon Sequestration (CS)	2.17	
Fish Support Group (FISH)	7.30	6.98
Aquatic Support Group (AQ)	7.28	9.00
Terrestrial Support Group (TERR)	4.96	9.00
Public Use & Recognition (PU)		2.22
Provisioning Services (PS)		2.00

MA-G-232.2 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	4.17	2.00
Water Quality Group (WQ)	5.38	5.07
Carbon Sequestration (CS)	1.89	
Fish Support Group (FISH)	3.31	7.12
Aquatic Support Group (AQ)	5.78	9.00
Terrestrial Support Group (TERR)	5.27	9.00
Public Use & Recognition (PU)		2.22
Provisioning Services (PS)		2.00

MA-G-269.2 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	2.08	6.25
Water Quality Group (WQ)	4.22	5.60
Carbon Sequestration (CS)	2.59	
Fish Support Group (FISH)	2.28	3.72
Aquatic Support Group (AQ)	6.35	9.33
Terrestrial Support Group (TERR)	5.01	9.00
Public Use & Recognition (PU)		2.00
Provisioning Services (PS)		2.00

UM-G-82 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	4.50	1.00
Water Quality Group (WQ)	10.00	2.88
Carbon Sequestration (CS)	2.21	
Fish Support Group (FISH)	4.17	3.54
Aquatic Support Group (AQ)	4.60	6.50
Terrestrial Support Group (TERR)	6.50	4.09
Public Use & Recognition (PU)		1.33
Provisioning Services (PS)		0.00

UM-G-105 (PEM)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	5.00	3.33
Water Quality Group (WQ)	10.00	5.98
Carbon Sequestration (CS)	2.60	
Fish Support Group (FISH)	1.72	6.67
Aquatic Support Group (AQ)	7.83	7.83
Terrestrial Support Group (TERR)	7.46	7.00
Public Use & Recognition (PU)		1.67
Provisioning Services (PS)		4.00

MALLCK-370 (PSS)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	2.71	2.50
Water Quality Group (WQ)	6.11	6.00
Carbon Sequestration (CS)	2.78	
Fish Support Group (FISH)	6.00	4.45
Aquatic Support Group (AQ)	7.33	8.00
Terrestrial Support Group (TERR)	6.08	8.00
Public Use & Recognition (PU)		2.38
Provisioning Services (PS)		2.00

MA-G-228 (PFO)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	0.00	1.50
Water Quality Group (WQ)	10.00	4.09
Carbon Sequestration (CS)	2.31	
Fish Support Group (FISH)	2.56	3.68
Aquatic Support Group (AQ)	6.62	6.62
Terrestrial Support Group (TERR)	5.21	6.67
Public Use & Recognition (PU)		0.00
Provisioning Services (PS)		2.00

MA-G-269.1 (PFO)

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)
Hydrologic Function (WS)	0.00	6.25
Water Quality Group (WQ)	6.67	6.44
Carbon Sequestration (CS)	2.72	
Fish Support Group (FISH)	3.61	3.09
Aquatic Support Group (AQ)	6.41	9.33
Terrestrial Support Group (TERR)	5.46	9.00
Public Use & Recognition (PU)		2.00
Provisioning Services (PS)		2.00

CoverPg: Basic Description of Assessment

	2012
Site Name:	UM_G_82
Investigator Name:	John Gordon, Thad Jones
Date of Field Assessment:	6/14/2012
County:	Umatilla
Nearest Town:	Mecham
Latitude (decimal degrees):	45.48100385
Longitude (decimal degrees):	-118.4670484
TRS, quarter/quarter section and tax lot(s)	1S35000002800
Approximate size of the Assessment Area (AA, in acres)	0.20
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	97E-Tolo silt loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	97E-Tolo silt loam
	100C-Tolo-Klicker association
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	
	R3UB
	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	RIVERINE
If tidal, the tidal phase during most of visit:	na
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+

Comments about the site or this ORWAP assessment (attach extra page if desired):

AA consists of small wetland fringe on both sides of stream, beginning near upstream end of Project Site Boundry (log across stream) and continues to constriction with Spruce on either side. AA is not continuous on both sides, having a 100 ft. gap before included wetland fringe downstream of road (culvert is undersided and creates side overflow channel). Parts of the AA is hydrologically connected but some of the water is diverted into an overflow channel due the under sized culvert. Wetland delineation at this location needs to be reviewed. F57: Upland inclusions are along segments of the stream where there is no wetland on the banks.

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	UM_G_82		
Investigator Name:	John Gordon, Thad Jones		
Date of Field Assessment:	6/14/2012		
Latitude (decimal degrees):	45.4810	Longitude (decimal degrees):	-118.4670484

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	4.50	1.00
Sediment Retention & Stabilization (SR)	10.00	2.88
Phosphorus Retention (PR)	10.00	1.46
Nitrate Removal & Retention (NR)	10.00	2.88
Thermoregulation (T)	0.00	2.50
Carbon Sequestration (CS)	2.21	
Organic Matter Export (OE)	0.00	
Aquatic Invertebrate Habitat (INV)	4.60	6.50
Anadromous Fish Habitat (FA)	0.00	3.54
Non-anadromous Fish Habitat (FR)	4.17	3.33
Amphibian & Reptile Habitat (AM)	4.12	1.33
Waterbird Feeding Habitat (WBF)	3.54	1.33
Waterbird Nesting Habitat (WBN)	0.00	1.00
Songbird, Raptor, & Mammal Habitat (SBM)	6.50	1.33
Pollinator Habitat (POL)	6.34	0.83
Native Plant Diversity (PD)	6.25	4.09

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	4.50	1.00	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	10.00	2.88	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.21		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	4.17	3.54	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	4.60	6.50	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	6.50	4.09	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		1.33	(click on this cell to see this attribute defined)
Provisioning Services (PS)		0.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.08
Wetland Stressors (STR)		3.48
Wetland Sensitivity (SEN)		10.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	2.50
Slope	10.00
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date:6/14/2012	Site Name: UM_G_82		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	0	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	1	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		1		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		0		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		0		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	1			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	1			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		0		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	1			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	1	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	0	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	0	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	1	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	1	
102			slight	0	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN,+ SBM]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		1		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		1		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		0		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		0		
179	NONE of the above		0		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		1		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		0		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		1		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		0		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		0		
207	None of above, or degraded water cannot reach wetland, or no data.		1		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		1		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		1		
214	None of above, or no data. Mark "1" then SKIP TO D43.		0		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		1		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		1		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		0		
231	20-47 inches per year		1		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/14/2012	Site Name: UM_G_82		Investigator:JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	Deschampsia caespitosa, Danthonia californica, Camassia quamash, Triteleia hyacinthina, Carex densa, C. aperta, and/or C. unilateralis [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	1	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	1	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		1		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	0			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		1		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	1	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	1	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	0	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	1	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	1	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	1			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	1	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	1	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		1		
143	Few or none, or AA never has any surface water at that time		0		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		1		
163	none of the above	0			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	1	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	0	
203			mostly graminoids (50-80% cover)	1	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	1	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	1	
223		<5% of the vegetated AA	0		
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	1	
229		<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	0		
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	1	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239		overwhelmingly (>80%) natives	1		
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	1	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	1	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	1	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	1	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	1	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	0	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	1	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	1	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	1	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	1	
291			Few or none	0	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	0	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	1	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	1	
299			Few or none	0	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	0	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	1	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		1		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	1	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		0		
314	25-50%		0		
315	<25%		1		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		0		
318	in private ownership		1		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		0		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		0		
325	(do not know)		1		
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		1		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		0		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		1		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		1		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	0	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	1	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	0	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	1	

Site Name: UM_G_82	Investigator: JOHN GORDON; THAD JONES	Date: 6/14/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	X
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S3 Drier Water Regime - Internal Causes					
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					X
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
placement of fill material					
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)		
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2	
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	6-12"	<6 inches	0	
			sum=	3	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1	
S4 Drier Water Regime - External Causes					
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
relocation of natural tributaries whose water would otherwise reach the AA					
instream water withdrawals from tributaries whose water would otherwise reach the AA					
groundwater withdrawals that divert water that would otherwise reach the AA					
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
changes not related directly to humans					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0	
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	1-12"	<1 inch	0	
			sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0	

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
					sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	0	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	0	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 0	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 0	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	2
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	3
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	2
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
			sum=	5
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	X

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	1
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
sum=				4
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 2

CoverPg: Basic Description of Assessment

ORWAP version 2.0.2 May 2012

Site Name:	UM_G_105
Investigator Name:	Thad Jones
Date of Field Assessment:	6/15/2012
County:	Umatilla
Nearest Town:	Meacham
Latitude (decimal degrees):	45.4326
Longitude (decimal degrees):	-118.4105
TRS, quarter/quarter section and tax lot(s)	1S35000005000
Approximate size of the Assessment Area (AA, in acres)	2.00
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	97C—Tolo silt loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	97C—Tolo silt loam
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Slope
If tidal, the tidal phase during most of visit:	na
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	no
How many wetlands have you assessed previously using ORWAP (approx.)?	20

Comments about the site or this ORWAP assessment (attach extra page if desired):

PEM wetland with standing water scattered throughout. Surrounded by forest.

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	UM_G_105		
Investigator Name:	Thad Jones		
Date of Field Assessment:	6/15/2012		
Latitude (decimal degrees):	45.4326	Longitude (decimal degrees):	-118.410484

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	5.00	3.33
Sediment Retention & Stabilization (SR)	10.00	3.96
Phosphorus Retention (PR)	10.00	4.58
Nitrate Removal & Retention (NR)	10.00	5.98
Thermoregulation (T)	0.00	0.00
Carbon Sequestration (CS)	2.60	
Organic Matter Export (OE)	0.00	
Aquatic Invertebrate Habitat (INV)	7.02	7.83
Anadromous Fish Habitat (FA)	0.00	3.72
Non-anadromous Fish Habitat (FR)	1.72	6.67
Amphibian & Reptile Habitat (AM)	7.83	4.67
Waterbird Feeding Habitat (WBF)	3.72	5.78
Waterbird Nesting Habitat (WBN)	0.00	4.33
Songbird, Raptor, & Mammal Habitat (SBM)	6.92	4.67
Pollinator Habitat (POL)	7.46	3.06
Native Plant Diversity (PD)	6.47	7.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	5.00	3.33	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	10.00	5.98	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.60		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	1.72	6.67	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.83	7.83	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	7.46	7.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		1.67	(click on this cell to see this attribute defined)
Provisioning Services (PS)		4.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		7.10
Wetland Stressors (STR)		3.31
Wetland Sensitivity (SEN)		10.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	0.00
Slope	10.00
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date: 6/15/2012	Site Name: UM_G_105		Investigator:THAD JONES
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	0	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	1	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		1		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		0		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		0		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		1		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	1			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		1		
43	cultivated row crops, orchards, vineyards, tree plantations		0		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	1	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	0	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	0	
73			100 to 300 ft	0	
74			300 to 1000 ft	1	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	1	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	0	
107			1 to 10 acres	1	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	1	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN,+ SBM]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		1		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		1		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	1			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		1		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		0		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		0		
186	1 to 10% of its CA		1		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		1		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		0		
207	None of above, or degraded water cannot reach wetland, or no data.		1		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		0		
214	None of above, or no data. Mark "1" then SKIP TO D43.		1		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		0		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		1		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		0		
231	20-47 inches per year		1		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/15/2012	Site Name: MA_G_105		Investigator:THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	1	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	Deschampsia caespitosa, Danthonia californica, Camassia quamash, Triteleia hyacinthina, Carex densa, C. aperta, and/or C. unilateralis [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	0	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	1	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	1	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	1	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	1	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		1		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	1	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	0	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	1	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	0	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	1	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		1		
143	Few or none, or AA never has any surface water at that time		0		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual. This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	1	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	0	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	1	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	1	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	0	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	1	
251			dead standing 4-9" diameter	1	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	1	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	1	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	1	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	1	
291			Few or none	0	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	0	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	1	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	1	
299			Few or none	0	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		1		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		0		
314	25-50%		1		
315	<25%		0		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		0		
318	in private ownership		1		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		0		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		0		
325	(do not know)		1		
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		0		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		1		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		1		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		1		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		1		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	1	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: MA_G_105	Investigator: THAD JONES	Date: 6/15/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	X
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	2
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	X
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	1
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	2
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S3	Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
placement of fill material					
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0	
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	6-12"	<6 inches	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S4	Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
relocation of natural tributaries whose water would otherwise reach the AA					
instream water withdrawals from tributaries whose water would otherwise reach the AA					
groundwater withdrawals that divert water that would otherwise reach the AA					
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
changes not related directly to humans					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0	
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	1-12"	<1 inch	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0

S5	Altered Timing of Water Inputs			
In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
increased pavement and other impervious surface in the CA				
straightening, ditching, dredging, and/or lining of tributary channels in the CA				
discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
other				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts			
In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
stormwater or wastewater effluent (including failing septic systems), landfills				
irrigation water discharges into the AA, including saline seeps				
livestock, dogs				
fertilizers applied to lawns, ag lands, or other areas in the CA				
pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
artificial drainage of upslope lands				
reflooding of soils that had been dry for many years				
fire retardants from aerial firefighting				
oil or chemical spills (not just chronic inputs) from nearby roads				
erosion of nutrient-rich or contaminated soils				
chemical wastes from mining, oil/ gas extraction, other industrial sources				
other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	3

S7	Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.					
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires					
erosion from construction, in-channel machinery in the CA					
erosion from off-road vehicles in the CA					
erosion from livestock or foot traffic in the CA					
stormwater or wastewater effluent					
sediment from gravel mining, other mining, oil/ gas extraction					
accelerated channel downcutting or headcutting of tributaries due to altered land use					
other human-related disturbances within the CA					
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA		extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
Recentness of significant soil disturbance in the CA		current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0
AA proximity to actual or potential sources		0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S8	Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil					
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods					
leveling or other grading not to the natural contour					
tillage, plowing (but excluding disking for enhancement of native plants)					
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland					
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot					
excavation					
dredging in or adjacent to the AA					
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments					
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments					
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil		>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
Recentness of significant soil alteration in AA		current & ongoing	1-12 months ago	>1 yr ago	3
Duration		long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1
Timing of soil alteration		frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
				sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	2

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	X

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	1
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	CloverCreek_2012
Investigator Name:	John Gordon; Thad Jones
Date of Field Assessment:	10/25/2012
County:	Union
Nearest Town:	North Powder
Latitude (decimal degrees):	45.1357
Longitude (decimal degrees):	-117.9707
TRS, quarter/quarter section and tax lot(s)	05S39E00900
Approximate size of the Assessment Area (AA, in acres)	4.50
AA as percent of entire wetland (approx.)	50%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	9A- Conley silty clay loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	9A- Conley silty clay loam
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Slope
If tidal, the tidal phase during most of visit:	na
What percent (approx.) of the wetland were you able to visit?	0
What percent (approx.) of the AA were you able to visit?	0
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+
Comments about the site or this ORWAP assessment (attach extra page if desired):	
Visual assessment of the AA from the ROW adjacent to the wetland and aerial imagery. Currently grazed. Appears drainage patterns have been altered and water distribution changed to irrigate larger areas of the pasture. Light snow on ground.	

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	CloverCreek_2012		
Investigator Name:	John Gordon; Thad Jones		
Date of Field Assessment:	10/25/2012		
Latitude (decimal degrees):	45.1357	Longitude (decimal degrees):	-117.970689

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	3.45	3.33
Sediment Retention & Stabilization (SR)	5.05	3.32
Phosphorus Retention (PR)	7.89	4.42
Nitrate Removal & Retention (NR)	4.59	5.12
Thermoregulation (T)	0.83	1.67
Carbon Sequestration (CS)	2.72	
Organic Matter Export (OE)	6.40	
Aquatic Invertebrate Habitat (INV)	6.47	7.33
Anadromous Fish Habitat (FA)	0.00	4.07
Non-anadromous Fish Habitat (FR)	1.57	2.04
Amphibian & Reptile Habitat (AM)	7.33	3.67
Waterbird Feeding Habitat (WBF)	4.07	4.78
Waterbird Nesting Habitat (WBN)	0.00	3.58
Songbird, Raptor, & Mammal Habitat (SBM)	6.23	3.67
Pollinator Habitat (POL)	6.51	2.50
Native Plant Diversity (PD)	3.46	6.67

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	3.45	3.33	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	7.89	5.12	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.72		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	1.57	4.07	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.33	7.33	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	6.51	6.67	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		2.74	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		6.32
Wetland Stressors (STR)		6.02
Wetland Sensitivity (SEN)		5.83

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	1.40
Slope	5.25
Flat	7.92
Depressional	2.22
Lacustrine	0.00

	A	B	C	D	E
1		Date: 10/25/2012	Site Name: Clover Creek 2012		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	0	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	1	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	0	
19			5 to 20%	1	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24			<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
25			100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
26			300-1000 ft	0	
27			>1000 ft	1	
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29			<1 acre of forest	0	
30			1-10 acres	0	
31			10-100 acres	0	
32			100-1000 acres	0	
33		>1000 acres	1		
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35			<5% of the land	0	
36			5 to 20% of the land	0	
37			20 to 60% of the land	0	
38			60 to 90% of the land	0	
39		>90% of the land	1		
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41			impervious surface, e.g., paved road, parking lot, building, exposed rock	1	
42			bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide	0	
43			cultivated row crops, orchards, vineyards, tree plantations	0	
44			artificially landscaped areas or lawn	0	
45			grassland grazed or mowed to a height usually shorter than 4 inches	0	
46			other	0	
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	1	
70			>80%	0	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	1	
89			>1000 ft, but no uninterrupted natural land corridor	0	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	1	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	0	
107			1 to 10 acres	0	
108			10 to 100 acres	1	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	1	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN,+ SBM]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	1	
121			none of above	0	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		1		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		1		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		1		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	0			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		1		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		0		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		0		
186	1 to 10% of its CA		1		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		1		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202			total suspended solids (TSS), sedimentation, or turbidity	0	
203			phosphorus	0	
204			nitrate or ammonia	0	
205			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
206			temperature	0	
207			None of above, or degraded water cannot reach wetland, or no data.	1	
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209			total suspended solids (TSS), sedimentation, or turbidity	0	
210			phosphorus	0	
211			nitrate or ammonia	0	
212			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
213			temperature	0	
214			None of above, or no data. Mark "1" then SKIP TO D43.	1	
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216			for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)	0	
217			intermittently (at least once annually, but for less than 9 months continually)	0	
218			Not connected, or connected less than annually	0	
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220			the source area for a surface-water drinking water (DW) source	0	
221			the source area for a groundwater drinking water source	0	
222			Neither of above	1	
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224			within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.	0	
225			within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml	0	
226			NONE of above	1	
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228			<10 inches per year	0	
229			10-12 inches per year	0	
230			13-19 inches per year	1	
231			20-47 inches per year	0	
232			48-77 inches per year	0	
233			>77 inches per year	0	

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date: 10/25/2012	Site Name: Clover Creek 2012		Investigator: JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	1	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	1	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	1			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	1	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	1	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	1	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	1	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	1			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	1	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	1	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		1		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	0	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	1	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	0	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	1	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	1	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	0	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	0	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257		dead standing >21" diameter	0		
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	1		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	1	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	1	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	0	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	1	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	0	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	1	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		1		
314	25-50%		0		
315	<25%		0		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		0		
318	in private ownership		1		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		0		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		1		
324	seldom or never		0		
325	(do not know)	0			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		0		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		1		
351	<5%, or grazing/ mowing does not cause the described condition		0		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		1		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		1		
359	50-95%		0		
360	5-50%		0		
361	<5%	0			
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		1		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	1	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	1	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	0	
395			Somewhat likely -- part but not all of the AA would remain a wetland	1	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: Clover Creek 2012	Investigator: John Gordon; Thad Jones	Date: 10/25/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs				sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	X
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	3
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs				sum= 4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 1

S3	Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
placement of fill material					
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0	
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	6-12"	<6 inches	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S4	Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
relocation of natural tributaries whose water would otherwise reach the AA					
instream water withdrawals from tributaries whose water would otherwise reach the AA					
groundwater withdrawals that divert water that would otherwise reach the AA					
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
changes not related directly to humans					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0	
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	1-12"	<1 inch	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0

S5 Altered Timing of Water Inputs				
In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				X
increased pavement and other impervious surface in the CA				
straightening, ditching, dredging, and/or lining of tributary channels in the CA				
discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				X
other				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	3
When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S6 Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
stormwater or wastewater effluent (including failing septic systems), landfills				
irrigation water discharges into the AA, including saline seeps				
livestock, dogs				X
fertilizers applied to lawns, ag lands, or other areas in the CA				
pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
artificial drainage of upslope lands				
reflooding of soils that had been dry for many years				
fire retardants from aerial firefighting				
oil or chemical spills (not just chronic inputs) from nearby roads				
erosion of nutrient-rich or contaminated soils				
chemical wastes from mining, oil/ gas extraction, other industrial sources				
other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	3

S7	Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.					
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires					
erosion from construction, in-channel machinery in the CA					
erosion from off-road vehicles in the CA					
erosion from livestock or foot traffic in the CA					
stormwater or wastewater effluent					
sediment from gravel mining, other mining, oil/ gas extraction					
accelerated channel downcutting or headcutting of tributaries due to altered land use					
other human-related disturbances within the CA					
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA		extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
Recentness of significant soil disturbance in the CA		current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0
AA proximity to actual or potential sources		0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S8	Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil					
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods					
leveling or other grading not to the natural contour					
tillage, plowing (but excluding disking for enhancement of native plants)					
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland					
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot					
excavation					
dredging in or adjacent to the AA					
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments					
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments					
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil		>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	3
Recentness of significant soil alteration in AA		current & ongoing	1-12 months ago	>1 yr ago	2
Duration		long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1
Timing of soil alteration		frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	2
				sum=	8
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	3

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	3
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
sum=				6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	Hassinger
Investigator Name:	Ed Strohmaier; Thad Jones
Date of Field Assessment:	Aug. 26-28
County:	Union
Nearest Town:	Alicel, OR
Latitude (decimal degrees):	45.3753
Longitude (decimal degrees):	-117.8692
TRS, quarter/quarter section and tax lot(s)	T2S R40E Sec. 32 L3; 02S40E03200
Approximate size of the Assessment Area (AA, in acres)	12.00
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	8-Catherine silty clay loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	8-Catherine silty clay loam
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Depressional
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	NA
How many wetlands have you assessed previously using ORWAP (approx.)?	6
Comments about the site or this ORWAP assessment (attach extra page if desired):	

ORWAP SCORES SHEET	Version 2.0.2 May 2012		
Site Name:			
Investigator Name:	Ed Strohmaier; Thad Jones		
Date of Field Assessment:	Aug. 26-28		
Latitude (decimal degrees):		Longitude (decimal degrees):	-117.869218

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	3.75	2.75
Sediment Retention & Stabilization (SR)	5.35	5.31
Phosphorus Retention (PR)	4.69	5.99
Nitrate Removal & Retention (NR)	5.31	5.71
Thermoregulation (T)	1.25	7.50
Carbon Sequestration (CS)	2.42	
Organic Matter Export (OE)	7.29	
Aquatic Invertebrate Habitat (INV)	5.33	8.00
Anadromous Fish Habitat (FA)	0.00	10.00
Non-anadromous Fish Habitat (FR)	0.74	10.00
Amphibian & Reptile Habitat (AM)	6.08	8.67
Waterbird Feeding Habitat (WBF)	4.16	5.33
Waterbird Nesting Habitat (WBN)	0.00	4.00
Songbird, Raptor, & Mammal Habitat (SBM)	4.94	5.33
Pollinator Habitat (POL)	3.10	6.67
Native Plant Diversity (PD)	3.99	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	3.75	2.75	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	5.35	7.50	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.42		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	0.74	10.00	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.29	8.67	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	4.94	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		0.48	(click on this cell to see this attribute defined)
Provisioning Services (PS)		0.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		3.57
Wetland Stressors (STR)		4.44
Wetland Sensitivity (SEN)		7.50

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	1.20
Slope	3.17
Flat	6.25
Depressional	3.33
Lacustrine	0.00

	A	B	C	D	E
1		Date: 8/28/2015	Site Name: Hassinger		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		0		
30	1-10 acres		1		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		1		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	0			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		1		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	1	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	1	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	0	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	1	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	1	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	0	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	1	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN,+ SBM]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		1		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		1	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above	0			

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		1		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	0			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		1		
183	in the lower one-third of its watershed		0		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		1		
207	None of above, or degraded water cannot reach wetland, or no data.		0		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		1		
214	None of above, or no data. Mark "1" then SKIP TO D43.		0		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		1		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		1		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		1		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date: Aug. 26-28	Site Name: Hassinger		Investigator:ED STROHMAIER; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	1	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	1	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	1	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		1		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)		0		
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)		1		
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		0		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		1		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	1	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	0	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	1	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual. This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	0	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	0	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	1	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	1	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	0	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	1	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	1	
223		<5% of the vegetated AA	0		
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	1	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229		<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	0		
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	1	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239		overwhelmingly (>80%) natives	1		
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-] Salix amygdaloides; Crataegus douglasii
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	1	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	0	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	1	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) <i>bare ground</i> or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	1	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	1	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	1	
291			Few or none	0	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the <i>duff layer</i> , see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	1	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	0	
314			25-50%	0	
315			<25%	1	
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317			in public ownership	0	
318			in private ownership	1	
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	1	
325	(do not know)	0			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	0	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	0	
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	0	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		0		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		1		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		1		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		1		
361	<5%	0			
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		1		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	0	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	1	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	1	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	1	
383			2-5%	0	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: Hassinger	Investigator: Ed Strohmaier; Thad Jones	Date: Aug. 26-28
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5 Altered Timing of Water Inputs				
In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
increased pavement and other impervious surface in the CA				
straightening, ditching, dredging, and/or lining of tributary channels in the CA				X
discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				X
other				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	2
When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	3
Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	3
			sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4
S6 Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
stormwater or wastewater effluent (including failing septic systems), landfills				
irrigation water discharges into the AA, including saline seeps				X
livestock, dogs				X
fertilizers applied to lawns, ag lands, or other areas in the CA				X
pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
artificial drainage of upslope lands				X
reflooding of soils that had been dry for many years				X
fire retardants from aerial firefighting				
oil or chemical spills (not just chronic inputs) from nearby roads				
erosion of nutrient-rich or contaminated soils				X
chemical wastes from mining, oil/ gas extraction, other industrial sources				
other human-related disturbances within the CA				X
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				X
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	2
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	2
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	5
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2

S7	Excessive Sediment Loading from Contributing Area					
	In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.					
	erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires					
	erosion from construction, in-channel machinery in the CA					
	erosion from off-road vehicles in the CA					
	erosion from livestock or foot traffic in the CA					
	stormwater or wastewater effluent					
	sediment from gravel mining, other mining, oil/ gas extraction					
	accelerated channel downcutting or headcutting of tributaries due to altered land use					
	other human-related disturbances within the CA					
	natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Erosion in CA		extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
	Recentness of significant soil disturbance in the CA		current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0	
AA proximity to actual or potential sources		0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0	
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment				sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0	
S8	Soil or Sediment Alteration Within the Assessment Area					
	In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil					
	compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods					
	leveling or other grading not to the natural contour					
	tillage, plowing (but excluding disking for enhancement of native plants)					
	fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland					
	livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot					
	excavation					
	dredging in or adjacent to the AA					
	boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments					
	artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments					
	natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent of altered soil		>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
Recentness of significant soil alteration in AA		current & ongoing	1-12 months ago	>1 yr ago	0	
Duration		long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	0	
Timing of soil alteration		frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	0	
				sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0	

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	0
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	0
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	0
sum=				0
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 0

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	Hassinger (predicted PEM)
Investigator Name:	Sue Brady
Date of Field Assessment:	n/a (forms completed 12/6/16)
County:	Union
Nearest Town:	Alicel, OR
Latitude (decimal degrees):	45.3753
Longitude (decimal degrees):	-117.8692
TRS, quarter/quarter section and tax lot(s)	T2S R40E Sec. 32 L3; 02S40E03200
Approximate size of the Assessment Area (AA, in acres)	12.00
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	8-Catherine silty clay loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	8-Catherine silty clay loam
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Flat
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Oct-11
How many wetlands have you assessed previously using ORWAP (approx.)?	19
Comments about the site or this ORWAP assessment (attach extra page if desired):	
This assessment is based on the pre-construction ORWAP assessment performed by TetraTech in August 2015, modified to reflect the post-construction expected condition of the PEM wetlands	

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	Hassinger		
Investigator Name:	Sue Brady		
Date of Field Assessment:	n/a (forms completed 12/6/16)		
Latitude (decimal degrees):		Longitude (decimal degrees):	-117.869218

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	3.50	2.75
Sediment Retention & Stabilization (SR)	5.11	5.47
Phosphorus Retention (PR)	4.78	6.19
Nitrate Removal & Retention (NR)	4.81	5.88
Thermoregulation (T)	2.08	8.75
Carbon Sequestration (CS)	2.81	
Organic Matter Export (OE)	7.60	
Aquatic Invertebrate Habitat (INV)	4.40	8.00
Anadromous Fish Habitat (FA)	5.77	10.00
Non-anadromous Fish Habitat (FR)	1.24	10.00
Amphibian & Reptile Habitat (AM)	2.71	8.67
Waterbird Feeding Habitat (WBF)	4.95	5.33
Waterbird Nesting Habitat (WBN)	0.00	4.00
Songbird, Raptor, & Mammal Habitat (SBM)	4.94	10.00
Pollinator Habitat (POL)	3.84	6.67
Native Plant Diversity (PD)	5.50	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	3.50	2.75	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	5.11	8.75	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.81		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	5.77	10.00	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.60	8.67	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.50	10.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		1.90	(click on this cell to see this attribute defined)
Provisioning Services (PS)		0.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		4.14
Wetland Stressors (STR)		4.44
Wetland Sensitivity (SEN)		7.50

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	2.40
Slope	2.42
Flat	5.63
Depressional	4.17
Lacustrine	0.00

	A	B	C	D	E
1		Date: 12/6/16	Site Name: Hassinger		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	1	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

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23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		0		
30	1-10 acres		1		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		1		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	0			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		1		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

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48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	1	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	1	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	0	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	1	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

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76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	1	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	0	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	1	
103	(could not determine)	0			

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104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	0	
107			1 to 10 acres	1	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN,+ SBM]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

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123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		1		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		1	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above	0			

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136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		1		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		1		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	0			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		1		
183	in the lower one-third of its watershed		0		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		1		
207	None of above, or degraded water cannot reach wetland, or no data.		0		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		1		
214	None of above, or no data. Mark "1" then SKIP TO D43.		0		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		1		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		1		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		1		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date: 12/6/16	Site Name: Hassinger		Investigator: Sue Brady
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	1	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	1	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	1	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		1		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	0			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		1		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		0		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		1		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell	0			
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	1	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	1	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	1	
118	F22	Vegetated Zone Relative Width	During most of the time open water is present in the AA, vegetated areas within the AA, where they are contiguous to open water, are:		open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species) when viewed from above. May include channels, ditches, ponded areas, regardless if seasonal, persistent, or temporary. For tidal areas, assess condition as it exists at mean high tide [SRv+,PRv+,NRv+, CS+,OE-,Sens-]
119			wider than the contiguous open water	1	
120			narrower than the contiguous open water (i.e., fringe wetlands)	0	
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	1	
124			25-100 ft	0	
125			5-25 ft	0	
126	<5 ft	0			
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133	cannot estimate	1			
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140	(surface water is typically absent in summer or during low tide)	1			

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual. This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		1		
166	carp		1		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		1		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	0			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	0	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	0	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	1	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	1	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-] Salix amygdaloides; Crataegus douglasii
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	0	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	1	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	0	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	1	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	1	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	1	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	1	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depression sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	1	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	<i>Visibility</i>	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	0	
314			25-50%	0	
315			<25%	1	
316	F66	<i>Ownership</i>	Most of the AA is (select one):		[PU+]
317			in public ownership	0	
318			in private ownership	1	
319	F67	<i>Public Access</i>	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	1	
325	(do not know)	0			
326	F68	<i>Non-consumptive Uses - Actual or Potential</i>	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	0	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	0	
330	F69	<i>Sustained Scientific Use</i>	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	0	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		0		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		1		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		1		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		1		
361	<5%	0			
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		1		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	0	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	1	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	1	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	1	
383			2-5%	0	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: Hassinger	Investigator: Sue Brady	Date: 12/6/16	
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	x
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	x
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	3
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	1
Average water level increase	>1 ft	6-12"	<6 inches	2
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	8
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				X
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				X
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	2
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	3
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	3
				sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				X
	livestock, dogs				X
	fertilizers applied to lawns, ag lands, or other areas in the CA				X
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				x
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				X
	reflooding of soils that had been dry for many years				X
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				X
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				X
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				X	
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	2	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	2	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	5	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				X
erosion from construction, in-channel machinery in the CA				X
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				X
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				X
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				X
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	1
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				X
leveling or other grading not to the natural contour				X
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				X
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	2
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	X
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	X
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	X
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	1
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	Hassinger (predicted PFO)
Investigator Name:	Sue Brady
Date of Field Assessment:	n/a (forms completed 12/6/16)
County:	Union
Nearest Town:	Alicel, OR
Latitude (decimal degrees):	45.3753
Longitude (decimal degrees):	-117.8692
TRS, quarter/quarter section and tax lot(s)	T2S R40E Sec. 32 L3; 02S40E03200
Approximate size of the Assessment Area (AA, in acres)	12.00
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	8-Catherine silty clay loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	8-Catherine silty clay loam
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PFO
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Flat
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Oct-11
How many wetlands have you assessed previously using ORWAP (approx.)?	19
Comments about the site or this ORWAP assessment (attach extra page if desired):	
This assessment is based on the pre-construction ORWAP assessment performed by TetraTech in August 2015, modified to reflect the post-construction expected condition of the PFO wetlands	

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	Hassinger		
Investigator Name:	Sue Brady		
Date of Field Assessment:	n/a (forms completed 12/6/16)		
Latitude (decimal degrees):	45.3753	Longitude (decimal degrees):	-117.869218

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	3.83	2.75
Sediment Retention & Stabilization (SR)	5.11	5.53
Phosphorus Retention (PR)	4.89	6.19
Nitrate Removal & Retention (NR)	4.62	5.88
Thermoregulation (T)	2.08	8.75
Carbon Sequestration (CS)	2.79	
Organic Matter Export (OE)	7.66	
Aquatic Invertebrate Habitat (INV)	4.44	8.00
Anadromous Fish Habitat (FA)	5.77	10.00
Non-anadromous Fish Habitat (FR)	1.46	10.00
Amphibian & Reptile Habitat (AM)	3.07	8.67
Waterbird Feeding Habitat (WBF)	4.74	5.33
Waterbird Nesting Habitat (WBN)	0.00	4.00
Songbird, Raptor, & Mammal Habitat (SBM)	5.79	10.00
Pollinator Habitat (POL)	4.79	6.67
Native Plant Diversity (PD)	6.88	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	3.83	2.75	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	5.11	8.75	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.79		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	5.77	10.00	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.66	8.67	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	6.88	10.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		1.90	(click on this cell to see this attribute defined)
Provisioning Services (PS)		0.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		4.59
Wetland Stressors (STR)		4.44
Wetland Sensitivity (SEN)		7.50

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	2.90
Slope	2.42
Flat	5.63
Depressional	4.17
Lacustrine	0.00

	A	B	C	D	E
1		Date: 12/6/16	Site Name: Hassinger (predicted PFO)		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	1	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		0		
30	1-10 acres		1		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		1		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	0			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		1		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	1	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	1	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	0	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	1	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	1	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	0	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	1	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	0	
107			1 to 10 acres	1	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN,+ SBM]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		1		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		1	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above	0			

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		1		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		1		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	0			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		1		
183	in the lower one-third of its watershed		0		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		1		
207	None of above, or degraded water cannot reach wetland, or no data.		0		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		1		
214	None of above, or no data. Mark "1" then SKIP TO D43.		0		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		1		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		1		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		1		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date: 12/6/16	Site Name: Hassinger (predicted PFO)		Investigator:Sue Brady
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	Deschampsia caespitosa, Danthonia californica, Camassia quamash, Triteleia hyacinthina, Carex densa, C. aperta, and/or C. unilateralis [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	1	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	1	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	1	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		1		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	0			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		1		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		0		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		1		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell	0			
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	1	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	1	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	1	
118	F22	Vegetated Zone Relative Width	During most of the time open water is present in the AA, vegetated areas within the AA, where they are contiguous to open water, are:		open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species) when viewed from above. May include channels, ditches, ponded areas, regardless if seasonal, persistent, or temporary. For tidal areas, assess condition as it exists at mean high tide [SRv+,PRv+,NRv+, CS+,OE-,Sens-]
119			wider than the contiguous open water	1	
120			narrower than the contiguous open water (i.e., fringe wetlands)	0	
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	1	
124			25-100 ft	0	
125			5-25 ft	0	
126	<5 ft	0			
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133	cannot estimate	1			
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140	(surface water is typically absent in summer or during low tide)	1			

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		1		
143	Few or none, or AA never has any surface water at that time		0		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual. This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		1		
166	carp		1		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		1		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	0			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	0	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	1	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants. Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	1	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	1	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	0	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	1	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	0	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	1	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	1	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-] Salix amygdaloides; Crataegus douglasii
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	1	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257		dead standing >21" diameter	0		
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	0	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	1	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	0	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	1	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) <i>bare ground</i> or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	1	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	1	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the <i>duff layer</i> , see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	1	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	1	
299			Few or none	0	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depression sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	1	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	<i>Visibility</i>	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	0	
314			25-50%	0	
315			<25%	1	
316	F66	<i>Ownership</i>	Most of the AA is (select one):		[PU+]
317			in public ownership	0	
318			in private ownership	1	
319	F67	<i>Public Access</i>	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	1	
325	(do not know)	0			
326	F68	<i>Non-consumptive Uses - Actual or Potential</i>	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	0	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	0	
330	F69	<i>Sustained Scientific Use</i>	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	0	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		0		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		1		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		1		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		1		
361	<5%	0			
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		1		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	0	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	1	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	1	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	1	
383			2-5%	0	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: Hassinger (predicted PFO)	Investigator: Sue Brady	Date: 12/6/16
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	x
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	x
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	3
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	1
Average water level increase	>1 ft	6-12"	<6 inches	2
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	8
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3	Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
placement of fill material					
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0	
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	6-12"	<6 inches	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S4	Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
relocation of natural tributaries whose water would otherwise reach the AA					
instream water withdrawals from tributaries whose water would otherwise reach the AA					
groundwater withdrawals that divert water that would otherwise reach the AA					
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
changes not related directly to humans					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0	
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	1-12"	<1 inch	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				X
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	2
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	3
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	3
				sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				X
	livestock, dogs				X
	fertilizers applied to lawns, ag lands, or other areas in the CA				X
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				x
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				X
	reflooding of soils that had been dry for many years				X
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				X
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				X
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				X	
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	2	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	2	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	5	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				X
erosion from construction, in-channel machinery in the CA				X
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				X
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				X
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				X
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	1
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				X
leveling or other grading not to the natural contour				X
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				X
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	2
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	X
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	X
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	X
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	1
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2

CoverPg: Basic Description of Assessment

	2012
Site Name:	BA_G_115&117
Investigator Name:	John Gordon, Thad Jones
Date of Field Assessment:	6/13/2012
County:	Baker County
Nearest Town:	Baker City
Latitude (decimal degrees):	44.664458259
Longitude (decimal degrees):	-117.573895037
TRS, quarter/quarter section and tax lot(s)	T10S R42E SEC28
Approximate size of the Assessment Area (AA, in acres)	1
AA as percent of entire wetland (approx.)	0.15
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	113D- Nagle silt loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	113D- Nagle silt loam
	143d- Ruckles-rucllick complex
	144e- ruckles-rucllick-snellby complex
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	
	R
	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	R
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	80
What percent (approx.) of the AA were you able to visit?	95
Have you attended an ORWAP training session? If so, indicate approximate month & year.	YES
How many wetlands have you assessed previously using ORWAP (approx.)?	>150

Comments about the site or this ORWAP assessment (attach extra page if desired):

Straw Ranch Creek has three constructed pushup dams: one at the lower end of the reach and 2 in the upper 1/3 of the reach connected by the stream with PEM fringe wetlands throughout. The system is fairly homogeneous throughout. The assessment was conducted in the upper part of the reach from the middle pushup damn to the upper pushup damn.

ORWAP SCORES SHEET		version 2.0.2 May 2012	
Site Name:	BA_G_115&117		
Investigator Name:	John Gordon, Thad Jones		
Date of Field Assessment:	6/13/2012		
Latitude (decimal degrees):	44.664458259	Longitude (decimal degrees):	-117.573895037

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	1.64	2.50
Sediment Retention & Stabilization (SR)	4.28	4.90
Phosphorus Retention (PR)	4.89	5.53
Nitrate Removal & Retention (NR)	4.69	4.38
Thermoregulation (T)	6.94	2.50
Carbon Sequestration (CS)	2.56	
Organic Matter Export (OE)	5.04	
Aquatic Invertebrate Habitat (INV)	6.67	8.00
Anadromous Fish Habitat (FA)	0.00	4.73
Non-anadromous Fish Habitat (FR)	4.87	2.37
Amphibian & Reptile Habitat (AM)	6.43	5.33
Waterbird Feeding Habitat (WBF)	4.73	8.00
Waterbird Nesting Habitat (WBN)	0.00	5.33
Songbird, Raptor, & Mammal Habitat (SBM)	5.00	6.67
Pollinator Habitat (POL)	5.77	3.33
Native Plant Diversity (PD)	4.88	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	1.64	2.50	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	6.94	5.53	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.56		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	4.87	4.73	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.67	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.77	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		1.33	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.16
Wetland Stressors (STR)		2.91
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	3.00
Slope	1.81
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date: 6/13/2012	Site Name: BA_G_115&117		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	0	
12			0.5- 1 mile	1	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		1		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	1			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		0		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		1		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	1	
102			slight	0	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	1	
106			0.1 - 1 acre	0	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	1	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	0	
122			data are inadequate (NWI mapping not completed in HUC)	1	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		1		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		1		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		1		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		1		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		0		
179	NONE of the above		0		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202			total suspended solids (TSS), sedimentation, or turbidity	0	
203			phosphorus	0	
204			nitrate or ammonia	0	
205			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
206			temperature	0	
207			None of above, or degraded water cannot reach wetland, or no data.	1	
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209			total suspended solids (TSS), sedimentation, or turbidity	0	
210			phosphorus	0	
211			nitrate or ammonia	0	
212			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
213			temperature	1	
214			None of above, or no data. Mark "1" then SKIP TO D43.	0	
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216			for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)	0	
217			intermittently (at least once annually, but for less than 9 months continually)	1	
218			Not connected, or connected less than annually	0	
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220			the source area for a surface-water drinking water (DW) source	0	
221			the source area for a groundwater drinking water source	0	
222			Neither of above	1	
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224			within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.	0	
225			within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml	0	
226			NONE of above	1	
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228			<10 inches per year	0	
229			10-12 inches per year	0	
230			13-19 inches per year	1	
231			20-47 inches per year	0	
232			48-77 inches per year	0	
233			>77 inches per year	0	

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/13/2012	Site Name: BA_G_115 & 117		Investigator:JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	1	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	0	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	1	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	1	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		1		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		0		
83	One depth class that comprises >50% of the AA's inundated area		1		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	5	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	1	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	1	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	1	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	1	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	1			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	1	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	1	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	1	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		1		
163	none of the above	0			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	1	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	0			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	1	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	1	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	1	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	1	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants. Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	0	
203			mostly graminoids (50-80% cover)	1	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	1	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257		dead standing >21" diameter	0		
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	0	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	1	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281	little or no (<5%) <i>bare ground</i> or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.		1		
282	some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.		0		
283	much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.		0		
284	mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.		0		
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286	<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads		0		
287	<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")		0		
288	<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.		1		
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290	Many (e.g., wetland-upland "mosaic")		1		
291	Few or none		0		
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the <i>duff layer</i> , see protocol in ORWAP Manual, section 2.3.2) is:	0	<i>duff layer</i> = leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293	<i>Loamy</i> : includes silt, silt loam, loam, sandy loam		1		
294	<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam		0		
295	<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral		0		
296	<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash		0		
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298	Several (>5 if AA is >10 acres, or >2 for smaller AAs)		0		
299	Few or none		1		
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301	Several (extensive micro-topography)		1		
302	Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod		0		
303	Intermediate		0		

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		1		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		0		
314	25-50%		0		
315	<25%		1		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		0		
318	in private ownership		1		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		0		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		0		
325	(do not know)	1			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		1		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		1		
351	<5%, or grazing/ mowing does not cause the described condition		0		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		1		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	0	
384			5-30%	1	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	1	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: BA_G_115&117	Investigator: JOHN GORDON, THAD JONES	Date: 6/13/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	X
excavation within the AA, e.g., artificial pond, dead-end ditch	X
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3	Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
placement of fill material					
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0	
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	6-12"	<6 inches	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S4	Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
relocation of natural tributaries whose water would otherwise reach the AA					
instream water withdrawals from tributaries whose water would otherwise reach the AA					
groundwater withdrawals that divert water that would otherwise reach the AA					
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
changes not related directly to humans					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	1	
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	1-12"	<1 inch	0	
				sum=	2
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	1

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
					sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
	sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 5	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 2	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				X
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				X
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	1
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	3
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				X
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				X
excavation				X
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	0
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	0
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	0
			sum=	2
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	1
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	1
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
sum=				3
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 1

CoverPg: Basic Description of Assessment

	ORWAP version 2.0.2 May 2012
Site Name:	BA_G_145
Investigator Name:	John Gordon, Thad Jones
Date of Field Assessment:	6/14/2012
County:	Baker
Nearest Town:	Pleasant Valley
Latitude (decimal degrees):	44.5658
Longitude (decimal degrees):	-117.3820
TRS, quarter/quarter section and tax lot(s)	T11S R44E Sec. 31
Approximate size of the Assessment Area (AA, in acres)	0.10
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	143D- Ruckles-Ruclick Complex
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	95C- Legler Gravelly Loam
	123D & 124D- Poall very fine sandy loam
	143D- Ruckles-Ruclick Complex
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	SLOPE
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	>150

Comments about the site or this ORWAP assessment (attach extra page if desired):

Slope PEM wetland with an area of open water evident in the spring of the year approximately 10X10 feet. Wetland is dominated by carex, has saturated soils and intermittent surface flow throughout. Signs of livestock use. The AA includes only the portion of the slope wetland above the road and is constricted into a small culvert at the downslope edge of the wetland. Likely the upslope edge was excavated and graded in the past. *Triglochin concinnum var. debile* present in the wetland.

ORWAP SCORES SHEET		version 2.0.2 May 2012	
Site Name:	BA_G_145		
Investigator Name:	John Gordon, Thad Jones		
Date of Field Assessment:	6/14/2012		
Latitude (decimal degrees):	44.5658	Longitude (decimal degrees):	-117.382

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	0.00	2.50
Sediment Retention & Stabilization (SR)	5.18	5.73
Phosphorus Retention (PR)	6.40	6.36
Nitrate Removal & Retention (NR)	4.78	4.71
Thermoregulation (T)	5.83	1.67
Carbon Sequestration (CS)	2.78	
Organic Matter Export (OE)	4.25	
Aquatic Invertebrate Habitat (INV)	6.14	8.00
Anadromous Fish Habitat (FA)	0.00	2.59
Non-anadromous Fish Habitat (FR)	1.34	1.30
Amphibian & Reptile Habitat (AM)	6.99	5.33
Waterbird Feeding Habitat (WBF)	2.59	8.00
Waterbird Nesting Habitat (WBN)	0.00	5.33
Songbird, Raptor, & Mammal Habitat (SBM)	5.95	5.33
Pollinator Habitat (POL)	5.96	3.33
Native Plant Diversity (PD)	5.18	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	0.00	2.50	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	6.40	6.36	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.78		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	1.34	2.59	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.99	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.96	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		0.00	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.63
Wetland Stressors (STR)		3.75
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	0.40
Slope	10.00
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date:6/14/2012	Site Name: BA_G_145		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	0	
12			0.5- 1 mile	1	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		0		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	1			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	1			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		1		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	1	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	0	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	0	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	1	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	1	
102			slight	0	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	1	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	0	
122			data are inadequate (NWI mapping not completed in HUC)	1	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		1		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		1		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	1			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		0		
207	None of above, or degraded water cannot reach wetland, or no data.		1		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		0		
214	None of above, or no data. Mark "1" then SKIP TO D43.		1		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		0		
217	intermittently (at least once annually, but for less than 9 months continually)		1		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		1		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		1		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/14/2012	Site Name: BA_G_145		Investigator:JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	Deschampsia caespitosa, Danthonia californica, Camassia quamash, Triteleia hyacinthina, Carex densa, C. aperta, and/or C. unilateralis [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	1	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	1	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	1	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	1			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	1	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	0	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	1	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	1	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	0	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118	F22	Vegetated Zone Relative Width	During most of the time open water is present in the AA, vegetated areas within the AA, where they are contiguous to open water, are:		open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species) when viewed from above. May include channels, ditches, ponded areas, regardless if seasonal, persistent, or temporary. For tidal areas, assess condition as it exists at mean high tide [SRv+,PRv+,NRv+, CS+,OE-,Sens-]
119			wider than the contiguous open water	0	
120			narrower than the contiguous open water (i.e., fringe wetlands)	0	
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126	<5 ft	0			
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133	cannot estimate	0			
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	1	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140	(surface water is typically absent in summer or during low tide)	0			

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	1	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	1	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258			Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0	
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	0	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	0	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	1	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	1	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	0	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	1	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	0	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		1		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depression sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	0	
314			25-50%	0	
315			<25%	1	
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317			in public ownership	1	
318			in private ownership	0	
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	1	
325	(do not know)	0			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	0	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	1	
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	1	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		1		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	1	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: BA_G_145	Investigator: John Gordon, Thad Jones	Date: 6/14/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	X
excavation within the AA, e.g., artificial pond, dead-end ditch	X
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				X
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	2
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5	Altered Timing of Water Inputs				
In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).					
flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA					
increased pavement and other impervious surface in the CA					
straightening, ditching, dredging, and/or lining of tributary channels in the CA					
discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant					
other					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent within the AA of timing shift		>95% of AA	5-95% of AA	<5% of AA	0
When most of the timing shift began		<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>					
Input timing now vs. previously		shift of weeks	shift of days	shift of hours or minutes	0
Flashiness or muting		became very flashy or controlled	intermediate	became mildly flashy or controlled	0
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA					
stormwater or wastewater effluent (including failing septic systems), landfills					
irrigation water discharges into the AA, including saline seeps					
livestock, dogs					X
fertilizers applied to lawns, ag lands, or other areas in the CA					
pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA					
dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries					
artificial drainage of upslope lands					
reflooding of soils that had been dry for many years					
fire retardants from aerial firefighting					
oil or chemical spills (not just chronic inputs) from nearby roads					
erosion of nutrient-rich or contaminated soils					
chemical wastes from mining, oil/ gas extraction, other industrial sources					
other human-related disturbances within the CA					
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants		industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1
Frequency & duration of input		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to main sources (actual or potential)		0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum=	5
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score=	2

S7	Excessive Sediment Loading from Contributing Area					
	In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.					
	erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires					
	erosion from construction, in-channel machinery in the CA					
	erosion from off-road vehicles in the CA					
	erosion from livestock or foot traffic in the CA					
	stormwater or wastewater effluent					
	sediment from gravel mining, other mining, oil/ gas extraction					
	accelerated channel downcutting or headcutting of tributaries due to altered land use					
	other human-related disturbances within the CA					
	natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Erosion in CA		extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
	Recentness of significant soil disturbance in the CA		current & ongoing	1-12 months ago	>1 yr ago	2
Duration of sediment inputs to the AA		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1	
AA proximity to actual or potential sources		0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	3	
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment				sum=	7	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	3	
S8	Soil or Sediment Alteration Within the Assessment Area					
	In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil					
	compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods					
	leveling or other grading not to the natural contour					
	tillage, plowing (but excluding disking for enhancement of native plants)					
	fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland					
	livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot					
	excavation					
	dredging in or adjacent to the AA					
	boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments					
	artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments					
	natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.					
			Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent of altered soil		>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA		current & ongoing	1-12 months ago	>1 yr ago	2	
Duration		long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1	
Timing of soil alteration		frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	2	
				sum=	7	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	3	

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
sum=				5
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 2

CoverPg: Basic Description of Assessment

	ORWAP version 2.0.2 May 2012
Site Name:	BA_G_148
Investigator Name:	John Gordon, Thad Jones
Date of Field Assessment:	6/14/2012
County:	Baker
Nearest Town:	Pleasant Valley
Latitude (decimal degrees):	44.5648
Longitude (decimal degrees):	-117.3824
TRS, quarter/quarter section and tax lot(s)	T11S R44E Sec. 31
Approximate size of the Assessment Area (AA, in acres)	0.15
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	123D- Poall very fine sandy loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	120D- Oxman-Xeric Torriorthents silt loams
	123D & 124D- Poall very fine sandy loam
	143D- Ruckles-Ruclick Complex
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
	R3UB
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	RIVERINE
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	>150

Comments about the site or this ORWAP assessment (attach extra page if desired):

Fringe wetland along perennial stream with steep (6-8%) gradient. Moderate sinuosity and serious downcutting and depositing are evident. Fresh unvegetated gravel bars comprise 30 to 40% of the AA. Recent deposition in vegetated areas as well increasing amount of bare ground.

ORWAP SCORES SHEET	version 2.0.2 May 2012		
Site Name:	BA_G_148		
Investigator Name:	John Gordon, Thad Jones		
Date of Field Assessment:	6/14/2012		
Latitude (decimal degrees):	44.5648	Longitude (decimal degrees):	-117.382362

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	0.00	2.50
Sediment Retention & Stabilization (SR)	2.18	5.93
Phosphorus Retention (PR)	1.72	6.53
Nitrate Removal & Retention (NR)	3.19	5.18
Thermoregulation (T)	3.33	3.33
Carbon Sequestration (CS)	2.36	
Organic Matter Export (OE)	6.86	
Aquatic Invertebrate Habitat (INV)	6.18	8.00
Anadromous Fish Habitat (FA)	0.00	3.10
Non-anadromous Fish Habitat (FR)	5.20	1.55
Amphibian & Reptile Habitat (AM)	6.69	5.33
Waterbird Feeding Habitat (WBF)	3.10	8.00
Waterbird Nesting Habitat (WBN)	0.00	5.33
Songbird, Raptor, & Mammal Habitat (SBM)	5.43	5.33
Pollinator Habitat (POL)	5.61	3.33
Native Plant Diversity (PD)	4.99	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	0.00	2.50	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	3.33	6.53	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.36		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	5.20	3.10	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.86	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.61	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		0.00	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.00
Wetland Stressors (STR)		3.75
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	3.50
Slope	3.06
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date:6/14/2012	Site Name: BA_G_148		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	0	
12			0.5- 1 mile	1	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24			<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
25			100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
26			300-1000 ft	0	
27			>1000 ft	1	
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29			<1 acre of forest	0	
30			1-10 acres	0	
31			10-100 acres	0	
32			100-1000 acres	0	
33		>1000 acres	1		
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35			<5% of the land	0	
36			5 to 20% of the land	0	
37			20 to 60% of the land	0	
38			60 to 90% of the land	0	
39		>90% of the land	1		
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
42			bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide	0	
43			cultivated row crops, orchards, vineyards, tree plantations	1	
44			artificially landscaped areas or lawn	0	
45			grassland grazed or mowed to a height usually shorter than 4 inches	0	
46			other	0	
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	1	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	0	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	0	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	1	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	1	
102			slight	0	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	<i>Wetland Size Uniqueness in Watershed</i>	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	1	
117	D23	<i>Wetland Number & Diversity Uniqueness</i>	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	0	
122			data are inadequate (NWI mapping not completed in HUC)	1	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		1		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above	1			

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		1		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	0			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202			total suspended solids (TSS), sedimentation, or turbidity	0	
203			phosphorus	0	
204			nitrate or ammonia	0	
205			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
206			temperature	0	
207			None of above, or degraded water cannot reach wetland, or no data.	1	
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209			total suspended solids (TSS), sedimentation, or turbidity	0	
210			phosphorus	0	
211			nitrate or ammonia	0	
212			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
213			temperature	0	
214			None of above, or no data. Mark "1" then SKIP TO D43.	1	
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216			for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)	1	
217			intermittently (at least once annually, but for less than 9 months continually)	0	
218			Not connected, or connected less than annually	0	
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220			the source area for a surface-water drinking water (DW) source	0	
221			the source area for a groundwater drinking water source	0	
222			Neither of above	1	
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224			within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.	0	
225			within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml	0	
226			NONE of above	1	
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228			<10 inches per year	0	
229			10-12 inches per year	0	
230			13-19 inches per year	1	
231			20-47 inches per year	0	
232			48-77 inches per year	0	
233			>77 inches per year	0	

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/14/2012	Site Name: BA_G_145		Investigator:JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	Deschampsia caespitosa, Danthonia californica, Camassia quamash, Triteleia hyacinthina, Carex densa, C. aperta, and/or C. unilateralis [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	1	
39			neither of above	0	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	1	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	1	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		1		
74	<0.5 ft or no change (stable)		0		
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)		1		
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	1	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	1	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	1	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	1			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	1	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	1	
132			<1%, or no definable water edge is present	0	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	1	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	1	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	1	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	1	
223		<5% of the vegetated AA	0		
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	1	
229		<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	0		
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	1	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239		overwhelmingly (>80%) natives	1		
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	1	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	1	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	1	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258			Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0	
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	1	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	1	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	0	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	1	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		1		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depression sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	0	
314			25-50%	0	
315			<25%	1	
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317			in public ownership	1	
318			in private ownership	0	
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	1	
325	(do not know)	0			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	0	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	0	
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	1	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		1		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	0	
384			5-30%	1	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	1	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: BA_G_145	Investigator: John Gordon, Thad Jones	Date: 6/14/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.

excavation within the AA, e.g., artificial pond, dead-end ditch

excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA

plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)

vegetation removal (e.g., logging) within the AA

compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles

changes not related directly to humans, e.g., beaver

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs				sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)

pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA

removal of timber or phreatophytes in the CA or along the AA's tributaries

removal of a water control structure or blockage in tributary upstream from the AA

changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs				sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0

S3	Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					X
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
placement of fill material					
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)		1
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago		3
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often		1
Water level decrease	>1 ft	6-12"	<6 inches		1
				sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	2
S4	Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
relocation of natural tributaries whose water would otherwise reach the AA					
instream water withdrawals from tributaries whose water would otherwise reach the AA					
groundwater withdrawals that divert water that would otherwise reach the AA					
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
changes not related directly to humans					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA		0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago		0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often		0
Water level decrease	>1 ft	1-12"	<1 inch		0
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
					sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
	sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 6	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	2
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	2
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	2
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	7
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	2
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	3
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
			sum=	8
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	X

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	2
			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	3

CoverPg: Basic Description of Assessment

ORWAP version 2.0.2 May 2012

Site Name:	BA_G_210.1
Investigator Name:	John Gordon; Thad Jones
Date of Field Assessment:	6/13/2012
County:	BA
Nearest Town:	Lime
Latitude (decimal degrees):	44.37379556
Longitude (decimal degrees):	-117.3017418
TRS, quarter/quarter section and tax lot(s)	14S44EROADS
Approximate size of the Assessment Area (AA, in acres)	0.03
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	145E- Ruclick very cobbly silt loam north slopes
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	145E- Ruclick very cobbly silt loam
	153E-Snaker-Darkcanyon complex
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	R3UB
	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Riverine
If tidal, the tidal phase during most of visit:	na
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+

Comments about the site or this ORWAP assessment (attach extra page if desired):
Stream is 1'-2' wide, 1"-3" deep, `10% grade in a narrow steep-sided canyon. Wetland is a fringe, 1'-5' wide, along most of stream; varying in width and somewhat discontinuous on both sides. Woody vegetation is almost exclusive above the wetland edge.

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	BA_G_210.1		
Investigator Name:	John Gordon; Thad Jones		
Date of Field Assessment:	6/13/2012		
Latitude (decimal degrees):	44.3738	Longitude (decimal degrees):	-117.3017418

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	0.00	4.58
Sediment Retention & Stabilization (SR)	2.71	5.80
Phosphorus Retention (PR)	2.08	6.11
Nitrate Removal & Retention (NR)	3.28	5.38
Thermoregulation (T)	5.83	3.33
Carbon Sequestration (CS)	2.29	
Organic Matter Export (OE)	6.51	
Aquatic Invertebrate Habitat (INV)	6.39	8.00
Anadromous Fish Habitat (FA)	0.00	0.00
Non-anadromous Fish Habitat (FR)	6.07	0.00
Amphibian & Reptile Habitat (AM)	6.56	5.33
Waterbird Feeding Habitat (WBF)	0.00	8.00
Waterbird Nesting Habitat (WBN)	0.00	5.33
Songbird, Raptor, & Mammal Habitat (SBM)	4.63	6.67
Pollinator Habitat (POL)	6.88	3.33
Native Plant Diversity (PD)	4.97	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	0.00	4.58	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	5.83	6.11	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.29		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	6.07	0.00	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.56	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	6.88	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		1.33	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		7.89
Wetland Stressors (STR)		3.16
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	5.00
Slope	10.00
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date: 6/13/2012	Site Name: BA_G210.1		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	0	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	1	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		1		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	1			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		1		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		0		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	1	
101			moderate	0	
102			slight	0	
103			(could not determine)	0	

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	1	
106			0.1 - 1 acre	0	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	1	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	0	
122			data are inadequate (NWI mapping not completed in HUC)	1	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		1		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above	1			

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		1		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		1		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		1		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		0		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		0		
179	NONE of the above		1		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		1		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		0		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		1		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		0		
207	None of above, or degraded water cannot reach wetland, or no data.		1		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		0		
214	None of above, or no data. Mark "1" then SKIP TO D43.		1		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		0		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		1		
222	Neither of above		0		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		1		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/12/2012	Site Name:MA_G_232.2		Investigator:John Gordon; Thad Jones
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	1	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	1	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)		1		
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)		1		
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	1	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	1	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	1	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	1			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	1	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	1	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		1		
143	Few or none, or AA never has any surface water at that time		0		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		1		
163	none of the above	0			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	1	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	0	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	1	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	1	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	1	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258			Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0	
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	0	
276			unknown	1	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	1	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual. [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	1	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	0	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	1	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	1	
299			Few or none	0	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		1		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		0		
314	25-50%		0		
315	<25%		1		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		0		
318	in private ownership		1		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		0		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		0		
325	(do not know)		1		
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		1		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		1		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	0	
384			5-30%	1	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	1	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name:MA_G_232.2	Investigator:John Gordon; Thad Jones	Date:6/12/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5	Altered Timing of Water Inputs					
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).					
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA					
	increased pavement and other impervious surface in the CA					
	straightening, ditching, dredging, and/or lining of tributary channels in the CA					
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant					
	other					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0	
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>					
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0	
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0	
					sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts					
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA					
	stormwater or wastewater effluent (including failing septic systems), landfills					
	irrigation water discharges into the AA, including saline seeps					
	livestock, dogs					X
	fertilizers applied to lawns, ag lands, or other areas in the CA					
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA					
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries					
	artificial drainage of upslope lands					
	reflooding of soils that had been dry for many years					
	fire retardants from aerial firefighting					
	oil or chemical spills (not just chronic inputs) from nearby roads					
	erosion of nutrient-rich or contaminated soils					
	chemical wastes from mining, oil/ gas extraction, other industrial sources					
	other human-related disturbances within the CA					
	sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1		
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1		
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3		
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum=	5	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score=	2	

S7	Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.					
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires					
erosion from construction, in-channel machinery in the CA					
erosion from off-road vehicles in the CA					
erosion from livestock or foot traffic in the CA					
stormwater or wastewater effluent					
sediment from gravel mining, other mining, oil/ gas extraction					
accelerated channel downcutting or headcutting of tributaries due to altered land use					
other human-related disturbances within the CA					
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA		extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
Recentness of significant soil disturbance in the CA		current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0
AA proximity to actual or potential sources		0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S8	Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil					
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods					
leveling or other grading not to the natural contour					
tillage, plowing (but excluding disking for enhancement of native plants)					
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland					
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot					
excavation					
dredging in or adjacent to the AA					
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments					
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments					
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil		>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
Recentness of significant soil alteration in AA		current & ongoing	1-12 months ago	>1 yr ago	1
Duration		long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1
Timing of soil alteration		frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
				sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	1

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	1
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name: BAPRO594	BAPRO594
Investigator Name:	John Gordon; Thad Jones
Date of Field Assessment:	10/25/2012
County:	Baker
Nearest Town:	Lime
Latitude (decimal degrees):	44.4960
Longitude (decimal degrees):	-117.3656
TRS, quarter/quarter section and tax lot(s)	12S44E00100
Approximate size of the Assessment Area (AA, in acres)	0.5 acres (est)
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	40A-Cumulic Haploxerolls
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	153E- Snaker-Darkcanyon comple
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM PFO
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	(RFT)
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+
Comments about the site or this ORWAP assessment (attach extra page if desired):	
Site confined between Wetherby Rest Area and steep slope. Currently grazed by cattle. Black cottonwood interspersed with Sumac. Existing power distribution line runs through site. AA is from west end (origin) of water source, east to culvert at east end of rest area.	

ORWAP SCORES SHEET		version 2.0.2 May 2012	
Site Name: BAPRO594	BAPRO594		
Investigator Name:	John Gordon; Thad Jones		
Date of Field Assessment:	10/25/2012		
Latitude (decimal degrees):	44.4960	Longitude (decimal degrees):	-117.36561

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	2.83	5.00
Sediment Retention & Stabilization (SR)	4.73	5.39
Phosphorus Retention (PR)	7.43	5.94
Nitrate Removal & Retention (NR)	4.34	5.34
Thermoregulation (T)	7.78	5.00
Carbon Sequestration (CS)	2.91	
Organic Matter Export (OE)	5.84	
Aquatic Invertebrate Habitat (INV)	5.09	8.00
Anadromous Fish Habitat (FA)	0.00	3.31
Non-anadromous Fish Habitat (FR)	4.57	1.65
Amphibian & Reptile Habitat (AM)	5.62	5.33
Waterbird Feeding Habitat (WBF)	3.31	5.33
Waterbird Nesting Habitat (WBN)	0.00	4.00
Songbird, Raptor, & Mammal Habitat (SBM)	3.38	5.33
Pollinator Habitat (POL)	3.84	3.33
Native Plant Diversity (PD)	2.34	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	2.83	5.00	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	7.78	5.94	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.91		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	4.57	3.31	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	5.84	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	3.84	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		3.57	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		2.98
Wetland Stressors (STR)		6.83
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	4.50
Slope	10.00
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date:10/25/2012	Site Name: BAPRO594		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	0	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	1	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

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23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		1		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		1		
39	>90% of the land	0			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		1		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		0		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

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48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

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76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	1	
101			moderate	0	
102			slight	0	
103			(could not determine)	0	

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104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	<i>Wetland Size Uniqueness in Watershed</i>	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	<i>Wetland Number & Diversity Uniqueness</i>	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN,+ SBM]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

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123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		1		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

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136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		1		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		1		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		0		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		1		
179	NONE of the above		0		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		0		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		1		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		1		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		1		
207	None of above, or degraded water cannot reach wetland, or no data.		0		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		1		
214	None of above, or no data. Mark "1" then SKIP TO D43.		0		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		0		
217	intermittently (at least once annually, but for less than 9 months continually)		1		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		1		
222	Neither of above		0		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		1		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
236	top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)		1		
237	bottom 18 (see Table 6 in WQprob worksheet)		0		
238	bottom 4 (Josephine, Hood River, Lincoln, Clatsop)		0		
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240	top 4 in Oregon (Marion, Malheur, Umatilla, Linn)		0		
241	top 18 (see Table 7 in WQprob worksheet)		1		
242	bottom 18 (see Table 7 in WQprob worksheet)		0		
243	bottom 4 (Curry, Josephine, Lincoln, Clatsop)		0		
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246	lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)		0		
247	mid 1/3		0		
248	upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)		0		
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250	>30 parts per thousand (undiluted seawater)		0		
251	5-30 ppt (mesohaline, polyhaline)		0		
252	0.5 - 5 ppt (oligohaline)		0		
253	<0.5 ppt (fresh)		0		
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:10/25/2012	Site Name: BAPRO594		Investigator:JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	Deschampsia caespitosa, Danthonia californica, Camassia quamash, Triteleia hyacinthina, Carex densa, C. aperta, and/or C. unilateralis [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	1	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	1	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	1	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		1		
74	<0.5 ft or no change (stable)	0			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		1		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	1	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	0	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	1	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	1	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	1	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118	F22	Vegetated Zone Relative Width	During most of the time open water is present in the AA, vegetated areas within the AA, where they are contiguous to open water, are:		open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species) when viewed from above. May include channels, ditches, ponded areas, regardless if seasonal, persistent, or temporary. For tidal areas, assess condition as it exists at mean high tide [SRv+,PRv+,NRv+, CS+,OE-,Sens-]
119			wider than the contiguous open water	1	
120			narrower than the contiguous open water (i.e., fringe wetlands)	0	
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	1	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	1	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140	(surface water is typically absent in summer or during low tide)	0			

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		1		
143	Few or none, or AA never has any surface water at that time		0		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	0	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	1	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	1	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	0	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	1	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	1	
222			5-25% of the vegetated AA	0	
223		<5% of the vegetated AA	0		
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229		<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1		
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	1	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239		overwhelmingly (>80%) natives	1		
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	1	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	1	
252			deciduous 9-21" diameter	1	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	1	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281	little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.		0		
282	some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.		0		
283	much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.		0		
284	mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.		1		
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286	<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads		1		
287	<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")		0		
288	<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.		0		
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290	Many (e.g., wetland-upland "mosaic")		0		
291	Few or none		1		
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293	<i>Loamy</i> : includes silt, silt loam, loam, sandy loam		0		
294	<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam		1		
295	<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral		0		
296	<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash		0		
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298	Several (>5 if AA is >10 acres, or >2 for smaller AAs)		1		
299	Few or none		0		
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301	Several (extensive micro-topography)		0		
302	Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod		0		
303	Intermediate		1		

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		1		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	1	
314			25-50%	0	
315			<25%	0	
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317			in public ownership	0	
318			in private ownership	1	
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	1	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	0	
325	(do not know)	0			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	1	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	1	
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	0	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		1		
351	<5%, or grazing/ mowing does not cause the described condition		0		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		1		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		1		
359	50-95%		0		
360	5-50%		0		
361	<5%		0		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	0	
369			60 to 90%	0	
370			30 to 60%	1	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	1	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	0	
384			5-30%	1	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	1	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: BAPRO594	Investigator: John Gordon; Thad Jones	Date: 10/25/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	x
excavation within the AA, e.g., artificial pond, dead-end ditch	x
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				x
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				x
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
					sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 6	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	2
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	3
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	2
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	2
			sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
				sum= 5
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 2

CoverPg: Basic Description of Assessment	2012
Site Name:	MA_G_207
Investigator Name:	John Gordon; Thad Jones
Date of Field Assessment:	6/13/2012
County:	Malheur
Nearest Town:	Nyssa
Latitude (decimal degrees):	43.8076
Longitude (decimal degrees):	-117.2493
TRS, quarter/quarter section and tax lot(s)	20S45E00100
Approximate size of the Assessment Area (AA, in acres)	1.90
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	Not Available
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	Not Available
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): <u>Systems</u> : Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E <u>Classes</u> : Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Depressional
If tidal, the tidal phase during most of visit:	
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+

Comments about the site or this ORWAP assessment (attach extra page if desired):
The AA includes the artificially ponded wetland and adjacent area immediate downslope of the road. The forested areas south of the pond are upland. There appears to be no hydrology upslope of the road.

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	MA_G_207		
Investigator Name:	John Gordon; Thad Jones		
Date of Field Assessment:	6/13/2012		
Latitude (decimal degrees):	43.8076	Longitude (decimal degrees):	-117.249325

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	0.00	3.33
Sediment Retention & Stabilization (SR)	10.00	5.86
Phosphorus Retention (PR)	10.00	6.33
Nitrate Removal & Retention (NR)	10.00	5.23
Thermoregulation (T)	0.00	0.00
Carbon Sequestration (CS)	2.17	
Organic Matter Export (OE)	0.00	
Aquatic Invertebrate Habitat (INV)	6.26	9.00
Anadromous Fish Habitat (FA)	0.00	3.97
Non-anadromous Fish Habitat (FR)	7.30	6.98
Amphibian & Reptile Habitat (AM)	7.28	6.00
Waterbird Feeding Habitat (WBF)	3.97	6.00
Waterbird Nesting Habitat (WBN)	4.17	4.50
Songbird, Raptor, & Mammal Habitat (SBM)	4.13	6.00
Pollinator Habitat (POL)	4.96	3.33
Native Plant Diversity (PD)	4.49	9.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	0.00	3.33	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	10.00	6.33	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.17		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	7.30	6.98	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.28	9.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	4.96	9.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		2.22	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.89
Wetland Stressors (STR)		5.36
Wetland Sensitivity (SEN)		10.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	0.00
Slope	2.75
Flat	5.57
Depressional	18.06
Lacustrine	0.00

	A	B	C	D	E
1		Date: 6/13/2012	Site Name: MA_G_207		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24			<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
25			100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
26			300-1000 ft	0	
27			>1000 ft	1	
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29			<1 acre of forest	1	
30			1-10 acres	0	
31			10-100 acres	0	
32			100-1000 acres	0	
33		>1000 acres	0		
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35			<5% of the land	0	
36			5 to 20% of the land	0	
37			20 to 60% of the land	0	
38			60 to 90% of the land	0	
39		>90% of the land	1		
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
42			bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide	0	
43			cultivated row crops, orchards, vineyards, tree plantations	0	
44			artificially landscaped areas or lawn	0	
45			grassland grazed or mowed to a height usually shorter than 4 inches	0	
46			other	0	
47	(none of above; land cover is >90% natural land cover)	1			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	1	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	0	
103	(could not determine)	1			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		1		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above	1			

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		1		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		0		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		0		
179	NONE of the above		0		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		0		
186	1 to 10% of its CA		1		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		1		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		0		
207	None of above, or degraded water cannot reach wetland, or no data.		1		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		0		
214	None of above, or no data. Mark "1" then SKIP TO D43.		1		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		0		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		1		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		1		
230	13-19 inches per year		0		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/13/2012	Site Name: MA_G_207		Investigator:JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	1	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	0	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	1	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	1	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	1	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	1	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		1		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above	0			
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		1		
87	most of the period (generally, May-August) when waterfowl are breeding		1		
88	neither of above (no ponded water >3 ft deep is that extensive)		0		
89	impossible to tell	0			
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	7	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	1	
96			groundwater, runoff, and direct precipitation	0	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	1	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	0	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	1	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	1	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	0	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:	0	SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	1	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	0			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	1	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	1	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	1	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	1	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	1	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	1	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	1	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	1	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	1	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	0	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	1	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		1		
314	25-50%		0		
315	<25%		0		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		1		
318	in private ownership		0		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		1		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		0		
325	(do not know)		0		
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		0		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		1		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		0		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		1		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		1		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: MA_G_207	Investigator: JOHN CORDON; THAD JONES	Date: 6/13/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	X
excavation within the AA, e.g., artificial pond, dead-end ditch	X
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	3
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	X
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	3
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S3	Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.					
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA					
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage					
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)					
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer					
placement of fill material					
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0	
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	6-12"	<6 inches	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0
S4	Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.					
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA					
relocation of natural tributaries whose water would otherwise reach the AA					
instream water withdrawals from tributaries whose water would otherwise reach the AA					
groundwater withdrawals that divert water that would otherwise reach the AA					
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA					
changes not related directly to humans					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0	
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>					
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0	
Water level decrease	>1 ft	1-12"	<1 inch	0	
				sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
					sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
	sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 6	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				X
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	3
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	8
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				X
leveling or other grading not to the natural contour				X
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				X
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				X
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	3
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	1
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	2
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
			sum=	7
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	0
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	0
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	0
sum=				0
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 0

CoverPg: Basic Description of Assessment	2012
Site Name:	MA_G_228
Investigator Name:	John Gordon, That Jones
Date of Field Assessment:	6/12/2012
County:	malheur
Nearest Town:	Nyssa
Latitude (decimal degrees):	43.74146413
Longitude (decimal degrees):	-117.1808311
TRS, quarter/quarter section and tax lot(s)	21S45E01000
Approximate size of the Assessment Area (AA, in acres)	0.30
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	N/A
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	N/A
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PFO
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Slope
If tidal, the tidal phase during most of visit:	
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+
Comments about the site or this ORWAP assessment (attach extra page if desired): PFO in a swale below, lage irrigation canal (Name N/A) swale above canal is subset. Sage-rabbitbrush steppe. Wetland appears to be result of leakage from canal.	

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	MA_G_228		
Investigator Name:	John Gordon, That Jones		
Date of Field Assessment:	6/12/2012		
Latitude (decimal degrees):	43.7415	Longitude (decimal degrees):	-117.1808311

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	0.00	1.50
Sediment Retention & Stabilization (SR)	10.00	2.85
Phosphorus Retention (PR)	10.00	4.09
Nitrate Removal & Retention (NR)	10.00	2.44
Thermoregulation (T)	0.00	0.00
Carbon Sequestration (CS)	2.31	
Organic Matter Export (OE)	0.00	
Aquatic Invertebrate Habitat (INV)	5.00	6.62
Anadromous Fish Habitat (FA)	0.00	3.68
Non-anadromous Fish Habitat (FR)	2.56	1.84
Amphibian & Reptile Habitat (AM)	6.62	2.67
Waterbird Feeding Habitat (WBF)	3.68	2.67
Waterbird Nesting Habitat (WBN)	0.00	2.00
Songbird, Raptor, & Mammal Habitat (SBM)	5.21	3.33
Pollinator Habitat (POL)	4.80	6.67
Native Plant Diversity (PD)	3.08	4.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	0.00	1.50	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	10.00	4.09	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.31		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	2.56	3.68	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.62	6.62	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.21	6.67	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		0.00	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.16
Wetland Stressors (STR)		5.34
Wetland Sensitivity (SEN)		10.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	0.00
Slope	4.94
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date: 6/12/2012	Site Name: MA_G_228		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24			<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
25			100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
26			300-1000 ft	0	
27			>1000 ft	1	
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29			<1 acre of forest	1	
30			1-10 acres	0	
31			10-100 acres	0	
32			100-1000 acres	0	
33		>1000 acres	0		
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35			<5% of the land	0	
36			5 to 20% of the land	0	
37			20 to 60% of the land	0	
38			60 to 90% of the land	1	
39		>90% of the land	0		
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
42			bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide	0	
43			cultivated row crops, orchards, vineyards, tree plantations	1	
44			artificially landscaped areas or lawn	0	
45			grassland grazed or mowed to a height usually shorter than 4 inches	0	
46			other	0	
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	1	
59			>1000 acres	0	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	1	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	0	
103	(could not determine)	1			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		1		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		1		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	0			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		1		
191	10 to 25%		0		
192	<10%, or wetland is tidal		0		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		1		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		0		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202			total suspended solids (TSS), sedimentation, or turbidity	0	
203			phosphorus	0	
204			nitrate or ammonia	0	
205			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
206			temperature	0	
207			None of above, or degraded water cannot reach wetland, or no data.	0	
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209			total suspended solids (TSS), sedimentation, or turbidity	0	
210			phosphorus	0	
211			nitrate or ammonia	0	
212			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
213			temperature	0	
214			None of above, or no data. Mark "1" then SKIP TO D43.	1	
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216			for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)	0	
217			intermittently (at least once annually, but for less than 9 months continually)	0	
218			Not connected, or connected less than annually	0	
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220			the source area for a surface-water drinking water (DW) source	0	
221			the source area for a groundwater drinking water source	0	
222			Neither of above	1	
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224			within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.	0	
225			within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml	0	
226			NONE of above	1	
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228			<10 inches per year	0	
229			10-12 inches per year	1	
230			13-19 inches per year	0	
231			20-47 inches per year	0	
232			48-77 inches per year	0	
233			>77 inches per year	0	

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/12/2012	Site Name: MA_G_228		Investigator:JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	Deschampsia caespitosa, Danthonia californica, Camassia quamash, Triteleia hyacinthina, Carex densa, C. aperta, and/or C. unilateralis [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	1	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	1	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	1	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	0	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	1	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	1			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	1	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	0	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	1	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	0	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	1	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	1	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	0	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	1	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	0	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	1	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	0	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	1	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	1	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	1	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	1	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281	little or no (<5%) <i>bare ground</i> or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.		0		
282	some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.		1		
283	much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.		0		
284	mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.		0		
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286	<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads		0		
287	<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")		0		
288	<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.		1		
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290	Many (e.g., wetland-upland "mosaic")		0		
291	Few or none		1		
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the <i>duff layer</i> , see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293	<i>Loamy</i> : includes silt, silt loam, loam, sandy loam		1		
294	<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam		0		
295	<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral		0		
296	<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash		0		
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298	Several (>5 if AA is >10 acres, or >2 for smaller AAs)		1		
299	Few or none		0		
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301	Several (extensive micro-topography)		1		
302	Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod		0		
303	Intermediate		0		

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		1		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	<i>Visibility</i>	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	0	
314			25-50%	0	
315			<25%	1	
316	F66	<i>Ownership</i>	Most of the AA is (select one):		[PU+]
317			in public ownership	1	
318			in private ownership	0	
319	F67	<i>Public Access</i>	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	0	
325			(do not know)	1	
326	F68	<i>Non-consumptive Uses - Actual or Potential</i>	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	1	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	1	
330	F69	<i>Sustained Scientific Use</i>	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	1	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		1		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		0		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		1		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	0	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	1	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	0	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	1	

Site Name: MA_G_228	Investigator: John Gordon, Thad Jones	Date: 6-12-12
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	X
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	2
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	X
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	3
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				X
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5 Altered Timing of Water Inputs				
In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
increased pavement and other impervious surface in the CA				
straightening, ditching, dredging, and/or lining of tributary channels in the CA				
discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				X
other				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	3
When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S6 Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
stormwater or wastewater effluent (including failing septic systems), landfills				
irrigation water discharges into the AA, including saline seeps				X
livestock, dogs				X
fertilizers applied to lawns, ag lands, or other areas in the CA				
pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
artificial drainage of upslope lands				
reflooding of soils that had been dry for many years				
fire retardants from aerial firefighting				
oil or chemical spills (not just chronic inputs) from nearby roads				
erosion of nutrient-rich or contaminated soils				
chemical wastes from mining, oil/ gas extraction, other industrial sources				
other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	2
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	2
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	3

S7	Excessive Sediment Loading from Contributing Area				
	In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
	erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				
	erosion from construction, in-channel machinery in the CA				
	erosion from off-road vehicles in the CA				
	erosion from livestock or foot traffic in the CA				
	stormwater or wastewater effluent				
	sediment from gravel mining, other mining, oil/ gas extraction				
	accelerated channel downcutting or headcutting of tributaries due to altered land use				
	other human-related disturbances within the CA				
	natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
	Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0	
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0	
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0	
S8	Soil or Sediment Alteration Within the Assessment Area				
	In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
	compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
	leveling or other grading not to the natural contour				
	tillage, plowing (but excluding disking for enhancement of native plants)				
	fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
	livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
	excavation				
	dredging in or adjacent to the AA				
	boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
	artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
	natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	3
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	3	
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	1	
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	2	
			sum=	9	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4	

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
sum=				5
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 2

CoverPg: Basic Description of Assessment

	2012
Site Name:	MA_G_232.2
Investigator Name:	John Gordon; Thad Jones
Date of Field Assessment:	6/12/2012
County:	Malheur
Nearest Town:	Nyssa
Latitude (decimal degrees):	43.7374
Longitude (decimal degrees):	-117.1757
TRS, quarter/quarter section and tax lot(s)	21S45E01000
Approximate size of the Assessment Area (AA, in acres)	0.10
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	29-Riverwash
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	29-Riverwash
	w-water
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Riverine
If tidal, the tidal phase during most of visit:	
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+

Comments about the site or this ORWAP assessment (attach extra page if desired):
 Owyhee River not included in the AA. AA is a blocked side channel. Road to Mansen Bridge cuts off about 10%-20% of the downstream and of AA. Both ends, or parts, of AA have open connection to the river.

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	MA_G_232.2		
Investigator Name:	John Gordon; Thad Jones		
Date of Field Assessment:	6/12/2012		
Latitude (decimal degrees):	43.7374	Longitude (decimal degrees):	-117.175686

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	4.17	2.00
Sediment Retention & Stabilization (SR)	5.00	5.07
Phosphorus Retention (PR)	2.62	4.97
Nitrate Removal & Retention (NR)	5.38	4.48
Thermoregulation (T)	4.44	3.33
Carbon Sequestration (CS)	1.89	
Organic Matter Export (OE)	5.78	
Aquatic Invertebrate Habitat (INV)	3.77	9.00
Anadromous Fish Habitat (FA)	0.00	4.25
Non-anadromous Fish Habitat (FR)	3.31	7.12
Amphibian & Reptile Habitat (AM)	2.07	6.00
Waterbird Feeding Habitat (WBF)	4.25	6.00
Waterbird Nesting Habitat (WBN)	0.00	4.50
Songbird, Raptor, & Mammal Habitat (SBM)	3.62	6.00
Pollinator Habitat (POL)	5.27	6.67
Native Plant Diversity (PD)	4.38	9.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	4.17	2.00	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	5.38	5.07	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	1.89		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	3.31	7.12	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	5.78	9.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.27	9.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		2.22	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.97
Wetland Stressors (STR)		4.39
Wetland Sensitivity (SEN)		6.50

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	4.00
Slope	0.25
Flat	0.00
Depressional	9.17
Lacustrine	0.00

	A	B	C	D	E
1		Date: 6/12/2012	Site Name: MA_G_232.2		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		1		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		1		
39	>90% of the land	0			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		1		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)		0		

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	1	
59			>1000 acres	0	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	0	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	1	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	0	
103			(could not determine)	1	

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		1		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		1		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		1		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		0		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		0		
179	NONE of the above		0		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		1		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		0		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		1		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202			total suspended solids (TSS), sedimentation, or turbidity	0	
203			phosphorus	0	
204			nitrate or ammonia	0	
205			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
206			temperature	0	
207			None of above, or degraded water cannot reach wetland, or no data.	1	
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209			total suspended solids (TSS), sedimentation, or turbidity	0	
210			phosphorus	0	
211			nitrate or ammonia	0	
212			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	1	
213			temperature	0	
214			None of above, or no data. Mark "1" then SKIP TO D43.	0	
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216			for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)	1	
217			intermittently (at least once annually, but for less than 9 months continually)	0	
218			Not connected, or connected less than annually	0	
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220			the source area for a surface-water drinking water (DW) source	0	
221			the source area for a groundwater drinking water source	0	
222			Neither of above	1	
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224			within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.	0	
225			within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml	0	
226			NONE of above	1	
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228			<10 inches per year	0	
229			10-12 inches per year	1	
230			13-19 inches per year	0	
231			20-47 inches per year	0	
232			48-77 inches per year	0	
233			>77 inches per year	0	

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:6/12/2012	Site Name:MA_G_232.2		Investigator:John Gordon; Thad Jones
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	1	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	0	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	1	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	1	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		1		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	0			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		1		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		0		
83	One depth class that comprises >50% of the AA's inundated area		1		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		1		
87	most of the period (generally, May-August) when waterfowl are breeding		1		
88	neither of above (no ponded water >3 ft deep is that extensive)		0		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	7	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	1	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	1	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	0	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	1	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	1	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	1	
118	F22	Vegetated Zone Relative Width	During most of the time open water is present in the AA, vegetated areas within the AA, where they are contiguous to open water, are:		open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species) when viewed from above. May include channels, ditches, ponded areas, regardless if seasonal, persistent, or temporary. For tidal areas, assess condition as it exists at mean high tide [SRv+,PRv+,NRv+, CS+,OE-,Sens-]
119			wider than the contiguous open water	0	
120			narrower than the contiguous open water (i.e., fringe wetlands)	1	
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	1	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	1	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		1		
163	none of the above	0			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		1		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		1		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	0			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	1	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	1	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	1	
223		<5% of the vegetated AA	0		
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	1	
229		<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	0		
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	1	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239		overwhelmingly (>80%) natives	1		
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	1	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258			Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0	
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) <i>bare ground</i> or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	1	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	1	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the <i>duff layer</i> , see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	0	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	1	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	0	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	1	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depression sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	1	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	<i>Visibility</i>	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	1	
314			25-50%	0	
315			<25%	0	
316	F66	<i>Ownership</i>	Most of the AA is (select one):		[PU+]
317			in public ownership	1	
318			in private ownership	0	
319	F67	<i>Public Access</i>	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	1	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	0	
325			(do not know)	0	
326	F68	<i>Non-consumptive Uses - Actual or Potential</i>	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	0	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	0	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	1	
330	F69	<i>Sustained Scientific Use</i>	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	1	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		0		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		1		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		1		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		1		
359	50-95%		0		
360	5-50%		0		
361	<5%	0			
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		1		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	0	
369			60 to 90%	1	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	1	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	0	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	1	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: MA_G_232.2	Investigator: John Gordon, Thad Jones	Date: 6-12-12
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	X
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts	
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2	
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1	
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>					
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0	
Average water level increase	>1 ft	6-12"	<6 inches	0	
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	3	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts	
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0	
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>					
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0	
Average water level increase	>1 ft	6-12"	<6 inches	0	
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				X
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				X
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				X
groundwater withdrawals that divert water that would otherwise reach the AA				X
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	2
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				X
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	2
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
				sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				X
	livestock, dogs				X
	fertilizers applied to lawns, ag lands, or other areas in the CA				X
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				X
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				X
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				X	
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	2	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	1	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	5	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	2	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				X
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				X
erosion from livestock or foot traffic in the CA				X
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	1
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	7
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				X
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	1
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	3
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	1
			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	2

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	X
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	1
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	1
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	3
sum=				5
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 2

CoverPg: Basic Description of Assessment	2012
Site Name:	MA_G_269
Investigator Name:	JOHN GORDON, THAD JONES
Date of Field Assessment:	6/12/2012
County:	Malheur
Nearest Town:	Ontario
Latitude (decimal degrees):	43.5872
Longitude (decimal degrees):	-117.0745
TRS, quarter/quarter section and tax lot(s)	T23S R46E S11; 23S46E00700
Approximate size of the Assessment Area (AA, in acres)	0.01
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	NOT AVAILABLE
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	NOT AVAILABLE
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): <u>Systems</u> : Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E <u>Classes</u> : Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PFO R3UBH
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	RUP; SV
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	YES
How many wetlands have you assessed previously using ORWAP (approx.)?	200

Comments about the site or this ORWAP assessment (attach extra page if desired):
Isolated wetland on east side of Succor creek crossing. Spring fed from side of sagebrush steppe slope.

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	MA_G_269		
Investigator Name:	JOHN GORDON, THAD JONES		
Date of Field Assessment:	6/12/2012		
Latitude (decimal degrees):	43.5872	Longitude (decimal degrees):	-117.074462

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	0.00	6.25
Sediment Retention & Stabilization (SR)	3.18	5.83
Phosphorus Retention (PR)	4.53	6.44
Nitrate Removal & Retention (NR)	4.04	5.32
Thermoregulation (T)	6.67	1.67
Carbon Sequestration (CS)	2.72	
Organic Matter Export (OE)	6.04	
Aquatic Invertebrate Habitat (INV)	6.41	9.00
Anadromous Fish Habitat (FA)	0.00	3.09
Non-anadromous Fish Habitat (FR)	3.61	1.54
Amphibian & Reptile Habitat (AM)	6.35	9.33
Waterbird Feeding Habitat (WBF)	3.09	6.00
Waterbird Nesting Habitat (WBN)	0.00	4.50
Songbird, Raptor, & Mammal Habitat (SBM)	4.68	6.00
Pollinator Habitat (POL)	5.46	5.00
Native Plant Diversity (PD)	4.40	9.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	0.00	6.25	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	6.67	6.44	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.72		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	3.61	3.09	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.41	9.33	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.46	9.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		2.00	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		5.28
Wetland Stressors (STR)		4.73
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	4.40
Slope	10.00
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		6/12/2012	Site Name: MA_G_269		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24	<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
25	100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.		0		
26	300-1000 ft		0		
27	>1000 ft		1		
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29	<1 acre of forest		1		
30	1-10 acres		0		
31	10-100 acres		0		
32	100-1000 acres		0		
33	>1000 acres	0			
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35	<5% of the land		0		
36	5 to 20% of the land		0		
37	20 to 60% of the land		0		
38	60 to 90% of the land		0		
39	>90% of the land	1			
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41	impervious surface, e.g., paved road, parking lot, building, exposed rock		0		
42	bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide		0		
43	cultivated row crops, orchards, vineyards, tree plantations		1		
44	artificially landscaped areas or lawn		0		
45	grassland grazed or mowed to a height usually shorter than 4 inches		0		
46	other		0		
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	1	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	1	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	0	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	0	
103			(could not determine)	1	

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	1	
106			0.1 - 1 acre	0	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	0	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		1		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		1		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		1		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		0		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		0		
179	NONE of the above		1		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		1		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		0		
207	None of above, or degraded water cannot reach wetland, or no data.		1		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		0		
214	None of above, or no data. Mark "1" then SKIP TO D43.		1		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		0		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		0		
222	Neither of above		0		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		1		
230	13-19 inches per year		0		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date:	Site Name:		Investigator:
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	1	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	1	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	1	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	1			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	1	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	0	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	1	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	0	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	1	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	0	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	1	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	0	
203			mostly graminoids (50-80% cover)	1	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	1	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	0	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	1	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223		<5% of the vegetated AA	0		
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	1	
228			5-25% of the area within 100 ft of surface water	0	
229		<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	0		
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	1	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239		overwhelmingly (>80%) natives	1		
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	1	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	1	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258			Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0	
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	0	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	1	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	0	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	1	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	1	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	1	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	1	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		1		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313			>50%	0	
314			25-50%	0	
315			<25%	1	
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317			in public ownership	0	
318			in private ownership	1	
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320			to anyone, mostly unrestricted	0	
321			to anyone, but significant restrictions (e.g., limited dates, permit required)	0	
322			only on a case-by-case basis, but with few other restrictions	0	
323			only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)	0	
324			seldom or never	0	
325			(do not know)	1	
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327			Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets	1	
328			All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat	1	
329			Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat	1	
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331			(do not know)	1	

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		1		
351	<5%, or grazing/ mowing does not cause the described condition		0		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		1		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		1		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	0	
384			5-30%	1	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: MA_G_269	Investigator: JOHN GORDON, THAD JONES	6/12/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	X
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				X
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				X
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				X
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
					sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 6	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	2
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	2
			sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	X
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	2
			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	3

CoverPg: Basic Description of Assessment	2012
Site Name:	MA_G_269.2
Investigator Name:	JOHN GORDON, THAD JONES
Date of Field Assessment:	6/12/2012
County:	Malheur
Nearest Town:	Nyssa
Latitude (decimal degrees):	43.5872
Longitude (decimal degrees):	0.0000
TRS, quarter/quarter section and tax lot(s)	T23S R46E S11; 23S46E00700
Approximate size of the Assessment Area (AA, in acres)	0.01
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	NA
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	NOT AVAILABLE
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	NOT AVAILABLE
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): <u>Systems</u> : Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E <u>Classes</u> : Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PEM R3UBH
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	RUP
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	YES
How many wetlands have you assessed previously using ORWAP (approx.)?	200

Comments about the site or this ORWAP assessment (attach extra page if desired):
The AA does not include the adjacent stream per ORWAP direction. 25X10 ft. fringe wetland on the west side of Succor Creek. Will be impacted by road work.

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	MA_G_269.2		
Investigator Name:	JOHN GORDON, THAD JONES		
Date of Field Assessment:	6/12/2012		
Latitude (decimal degrees):	43.5872	Longitude (decimal degrees):	0

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	2.08	6.25
Sediment Retention & Stabilization (SR)	2.85	4.96
Phosphorus Retention (PR)	4.22	5.60
Nitrate Removal & Retention (NR)	3.97	4.98
Thermoregulation (T)	2.08	3.33
Carbon Sequestration (CS)	2.59	
Organic Matter Export (OE)	6.35	
Aquatic Invertebrate Habitat (INV)	4.43	9.00
Anadromous Fish Habitat (FA)	0.00	3.72
Non-anadromous Fish Habitat (FR)	2.28	1.86
Amphibian & Reptile Habitat (AM)	2.51	9.33
Waterbird Feeding Habitat (WBF)	3.72	6.00
Waterbird Nesting Habitat (WBN)	0.00	4.50
Songbird, Raptor, & Mammal Habitat (SBM)	4.36	6.00
Pollinator Habitat (POL)	5.01	5.00
Native Plant Diversity (PD)	2.68	9.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	2.08	6.25	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	4.22	5.60	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.59		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	2.28	3.72	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.35	9.33	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.01	9.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		2.00	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		4.88
Wetland Stressors (STR)		5.09
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	7.50
Slope	0.75
Flat	0.00
Depressional	4.17
Lacustrine	0.00

	A	B	C	D	E
1		6/12/2012	Site Name: MA_G_269		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	0	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24			<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
25			100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
26			300-1000 ft	0	
27			>1000 ft	1	
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29			<1 acre of forest	1	
30			1-10 acres	0	
31			10-100 acres	0	
32			100-1000 acres	0	
33		>1000 acres	0		
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35			<5% of the land	0	
36			5 to 20% of the land	0	
37			20 to 60% of the land	0	
38			60 to 90% of the land	0	
39		>90% of the land	1		
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
42			bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide	0	
43			cultivated row crops, orchards, vineyards, tree plantations	1	
44			artificially landscaped areas or lawn	0	
45			grassland grazed or mowed to a height usually shorter than 4 inches	0	
46			other	0	
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	1	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	1	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	0	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	0	
103			(could not determine)	1	

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	1	
106			0.1 - 1 acre	0	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	1	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		1		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		0		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		1		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		1		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	1			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		0		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		1		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		1		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202			total suspended solids (TSS), sedimentation, or turbidity	0	
203			phosphorus	0	
204			nitrate or ammonia	0	
205			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
206			temperature	0	
207			None of above, or degraded water cannot reach wetland, or no data.	1	
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209			total suspended solids (TSS), sedimentation, or turbidity	0	
210			phosphorus	0	
211			nitrate or ammonia	0	
212			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
213			temperature	0	
214			None of above, or no data. Mark "1" then SKIP TO D43.	1	
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216			for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)	0	
217			intermittently (at least once annually, but for less than 9 months continually)	0	
218			Not connected, or connected less than annually	0	
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220			the source area for a surface-water drinking water (DW) source	0	
221			the source area for a groundwater drinking water source	0	
222			Neither of above	1	
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224			within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.	0	
225			within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml	0	
226			NONE of above	1	
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228			<10 inches per year	0	
229			10-12 inches per year	1	
230			13-19 inches per year	0	
231			20-47 inches per year	0	
232			48-77 inches per year	0	
233			>77 inches per year	0	

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date: 6/12/2012	Site Name: MA_G_269.2		Investigator: JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	1	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	0	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	1	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	1	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	0	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		1		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	0			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		1		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	3	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	1	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	0	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	1	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	1	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	1	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	1			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	1	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	0	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	1	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		1		
163	none of the above	0			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165			non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)	1	
166			carp	0	
167			other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)	1	
168			non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)	0	
169			nutria	0	
170		none of above, or unknown	0		
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	1	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185		impossible to tell	0		
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189		impossible to tell	0		

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	1	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	1	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	0	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	1	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	0	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	0	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	0	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258			Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0	
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	1	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	0	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	1	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	1	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	1	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	0	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	1	
303			Intermediate	0	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	1	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		0		
314	25-50%		0		
315	<25%		1		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		0		
318	in private ownership		1		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		0		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		0		
325	(do not know)	1			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		1		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		1		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		1		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		0		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		1		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	1	
384			5-30%	0	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	1	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: MA_G_269.2	Investigator: JOHN GORDON, THAD JONES	6/12/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	X
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	3
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	3
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S5 Altered Timing of Water Inputs				
In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				X
increased pavement and other impervious surface in the CA				
straightening, ditching, dredging, and/or lining of tributary channels in the CA				
discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
other				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	3
When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
			sum=	4
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S6 Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
stormwater or wastewater effluent (including failing septic systems), landfills				
irrigation water discharges into the AA, including saline seeps				
livestock, dogs				X
fertilizers applied to lawns, ag lands, or other areas in the CA				
pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
artificial drainage of upslope lands				
reflooding of soils that had been dry for many years				
fire retardants from aerial firefighting				
oil or chemical spills (not just chronic inputs) from nearby roads				
erosion of nutrient-rich or contaminated soils				
chemical wastes from mining, oil/ gas extraction, other industrial sources				
other human-related disturbances within the CA				
sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.			sum=	6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.			final score=	3

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	0
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	0
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	0
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	0
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	3
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	2
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	2
			sum=	10
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	X
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	3
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	2
sum=				7
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	MAL1-Alkaline
Investigator Name:	John Gordon; Thad Jones
Date of Field Assessment:	10/24/2012
County:	Malheur
Nearest Town:	Vale
Latitude (decimal degrees):	43.9592
Longitude (decimal degrees):	-117.4688
TRS, quarter/quarter section and tax lot(s)	18S43E01400
Approximate size of the Assessment Area (AA, in acres)	0.60
AA as percent of entire wetland (approx.)	5%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	Not Available
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	Not Available
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	PSSUB
	PEM
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Slope
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+
Comments about the site or this ORWAP assessment (attach extra page if desired):	
AA is edge of wetland within site boundary - wetland extends beyond site boundary to east and west. Two wetland types: PEM - Cattail, bulrush, disticillis, eleochois: PSSUB - greasewood, disticillis. 2-track access road bisects wetland. East edge is against old railroad grade. Transition from greasewood to sagebrush is apparent wetland boundary on topographic break.	

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	MAL1-Alkaline		
Investigator Name:	John Gordon; Thad Jones		
Date of Field Assessment:	10/24/2012		
Latitude (decimal degrees):	43.9592	Longitude (decimal degrees):	-117.46879

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	1.45	2.71
Sediment Retention & Stabilization (SR)	4.25	4.88
Phosphorus Retention (PR)	4.49	4.88
Nitrate Removal & Retention (NR)	4.12	5.07
Thermoregulation (T)	8.33	0.00
Carbon Sequestration (CS)	2.89	
Organic Matter Export (OE)	4.83	
Aquatic Invertebrate Habitat (INV)	5.84	8.00
Anadromous Fish Habitat (FA)	0.00	3.36
Non-anadromous Fish Habitat (FR)	1.73	1.68
Amphibian & Reptile Habitat (AM)	7.15	5.33
Waterbird Feeding Habitat (WBF)	3.36	8.67
Waterbird Nesting Habitat (WBN)	0.00	6.50
Songbird, Raptor, & Mammal Habitat (SBM)	5.15	5.33
Pollinator Habitat (POL)	5.82	3.33
Native Plant Diversity (PD)	5.03	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	1.45	2.71	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	8.33	5.07	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.89		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	1.73	3.36	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.15	8.67	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.82	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		0.95	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		4.91
Wetland Stressors (STR)		4.42
Wetland Sensitivity (SEN)		8.75

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	2.00
Slope	10.00
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date: 10/24/2012	Site Name: MAL1-Alkaline		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	1	
12			0.5- 1 mile	0	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24			<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
25			100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
26			300-1000 ft	0	
27			>1000 ft	1	
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29			<1 acre of forest	1	
30			1-10 acres	0	
31			10-100 acres	0	
32			100-1000 acres	0	
33		>1000 acres	0		
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35			<5% of the land	0	
36			5 to 20% of the land	0	
37			20 to 60% of the land	0	
38			60 to 90% of the land	1	
39		>90% of the land	0		
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
42			bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide	1	
43			cultivated row crops, orchards, vineyards, tree plantations	0	
44			artificially landscaped areas or lawn	0	
45			grassland grazed or mowed to a height usually shorter than 4 inches	0	
46			other	0	
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	0	
64			NONE of above	1	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	0	
101			moderate	0	
102			slight	0	
103			(could not determine)	1	

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	0	
107			1 to 10 acres	0	
108			10 to 100 acres	1	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	Wetland Size Uniqueness in Watershed	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	1	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	1	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	0	
117	D23	Wetland Number & Diversity Uniqueness	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]+
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	1	
122			data are inadequate (NWI mapping not completed in HUC)	0	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		0		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		1		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		1		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		0		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		1		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		0		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		1		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34		<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:	
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.	0			
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.	0			
179	NONE of the above	1			

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		1		
183	in the lower one-third of its watershed		0		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		1		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		0		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		0		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		1		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202			total suspended solids (TSS), sedimentation, or turbidity	0	
203			phosphorus	0	
204			nitrate or ammonia	0	
205			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
206			temperature	0	
207			None of above, or degraded water cannot reach wetland, or no data.	1	
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209			total suspended solids (TSS), sedimentation, or turbidity	0	
210			phosphorus	0	
211			nitrate or ammonia	0	
212			toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)	0	
213			temperature	0	
214			None of above, or no data. Mark "1" then SKIP TO D43.	1	
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216			for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)	0	
217			intermittently (at least once annually, but for less than 9 months continually)	0	
218			Not connected, or connected less than annually	0	
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220			the source area for a surface-water drinking water (DW) source	0	
221			the source area for a groundwater drinking water source	0	
222			Neither of above	1	
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224			within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.	0	
225			within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml	0	
226			NONE of above	1	
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228			<10 inches per year	0	
229			10-12 inches per year	0	
230			13-19 inches per year	1	
231			20-47 inches per year	0	
232			48-77 inches per year	0	
233			>77 inches per year	0	

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date: 10/24/12	Site Name: MAL1-Alkaline		Investigator: JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	0	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	1	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

	A	B	C	D	E
14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttallii, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

	A	B	C	D	E
23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	0	
45			25-50% of the AA	0	
46			5-25% of the AA	1	
47			<5% of the AA, or none	0	

	A	B	C	D	E
48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	0	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

	A	B	C	D	E
69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		0		
74	<0.5 ft or no change (stable)	1			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		0		
80	<0.5 ft deep (but >0)	1			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		0		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

	A	B	C	D	E
92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	0	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	1	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	1	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	0	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	0	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	1	
109			not impeded by anything other than (possibly) natural topography	0	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	0	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

	A	B	C	D	E
112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	0	
118			F22	Vegetated Zone Relative Width	
119	wider than the contiguous open water	0			
120	narrower than the contiguous open water (i.e., fringe wetlands)	0			
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	0	
126			<5 ft	0	
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	0	
133			cannot estimate	0	
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	1	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140			(surface water is typically absent in summer or during low tide)	0	

	A	B	C	D	E
141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		0		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		1		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	0	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	0	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	0	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189	impossible to tell	0			

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	0	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	1	
199			5-25% of the vegetated part of the AA	0	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants. Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	1	
203			mostly graminoids (50-80% cover)	0	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	0	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	1	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	0	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	1	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	0	
221			25-50% of the vegetated AA	1	
222			5-25% of the vegetated AA	0	
223		<5% of the vegetated AA	0		
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229		<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1		
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	1	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239		overwhelmingly (>80%) natives	1		
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	1	
242			no two of the native species together comprise >80% of the native shrub & vine cover	0	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	0	
248			evergreen 1-4" diameter and >3 ft tall	1	
249			deciduous 4-9" diameter	0	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258		Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0		
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	0	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	1	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281			little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.	0	
282			some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.	1	
283			much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.	0	
284			mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.	0	
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286			<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads	0	
287			<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	1	
288			<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.	0	
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290			Many (e.g., wetland-upland "mosaic")	0	
291			Few or none	1	
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293			<i>Loamy</i> : includes silt, silt loam, loam, sandy loam	1	
294			<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	0	
295			<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral	0	
296			<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash	0	
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298			Several (>5 if AA is >10 acres, or >2 for smaller AAs)	0	
299			Few or none	1	
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301			Several (extensive micro-topography)	0	
302			Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod	0	
303			Intermediate	1	

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		0		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		1		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	0	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	1	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	0	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		0		
314	25-50%		0		
315	<25%		1		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		0		
318	in private ownership		1		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		0		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		1		
325	(do not know)	0			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		0		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		0		
351	<5%, or grazing/ mowing does not cause the described condition		1		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		1		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		0		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		0		
364	much (5-50%) of the upland edge		1		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	0	
384			5-30%	1	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	1	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%, (ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	0	
392					
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: MAL1-Alkaline	Investigator: John Gordon; Thad Jones	Date: 10/24/12	
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	X
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	3
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>				
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0
Average water level increase	>1 ft	6-12"	<6 inches	0
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5	Altered Timing of Water Inputs					
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).					
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA					
	increased pavement and other impervious surface in the CA					
	straightening, ditching, dredging, and/or lining of tributary channels in the CA					
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant					
	other					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0	
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>					
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0	
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0	
					sum= 0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0		
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts					
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA					
	stormwater or wastewater effluent (including failing septic systems), landfills					
	irrigation water discharges into the AA, including saline seeps					
	livestock, dogs					X
	fertilizers applied to lawns, ag lands, or other areas in the CA					
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA					
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries					
	artificial drainage of upslope lands					
	reflooding of soils that had been dry for many years					
	fire retardants from aerial firefighting					
	oil or chemical spills (not just chronic inputs) from nearby roads					
	erosion of nutrient-rich or contaminated soils					
	chemical wastes from mining, oil/ gas extraction, other industrial sources					
	other human-related disturbances within the CA					X
	sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife					
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)		
	Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1	
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2		
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3		
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 6		
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3		

S7	Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.					
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires					
erosion from construction, in-channel machinery in the CA					
erosion from off-road vehicles in the CA					
erosion from livestock or foot traffic in the CA					X
stormwater or wastewater effluent					
sediment from gravel mining, other mining, oil/ gas extraction					
accelerated channel downcutting or headcutting of tributaries due to altered land use					
other human-related disturbances within the CA					
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA		extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	1
Recentness of significant soil disturbance in the CA		current & ongoing	1-12 months ago	>1 yr ago	3
Duration of sediment inputs to the AA		frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	2
AA proximity to actual or potential sources		0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	3
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment				sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	4
S8	Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil					
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods					X
leveling or other grading not to the natural contour					
tillage, plowing (but excluding disking for enhancement of native plants)					
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland					
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot					X
excavation					X
dredging in or adjacent to the AA					
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments					
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments					
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.					
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.					
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil		>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA		current & ongoing	1-12 months ago	>1 yr ago	3
Duration		long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	2
Timing of soil alteration		frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	2
				sum=	9
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	4

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	2
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
sum=				5
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 2

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	MAWLLCK-370
Investigator Name:	John Gordon; Thad Jones
Date of Field Assessment:	10/24/2012
County:	Baker
Nearest Town:	Hermiston
Latitude (decimal degrees):	44.3391
Longitude (decimal degrees):	-117.3044
TRS, quarter/quarter section and tax lot(s)	14S44E02000
Approximate size of the Assessment Area (AA, in acres)	0.02
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	na
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	Ruclick very cobbly silt loam
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	Ruclick very cobbly silt loam
Cowardin Systems & Classes (indicate all present, based on field visit and/or aerial imagery): Systems: Palustrine =P, Riverine =R, Lacustrine =L, Estuarine =E Classes: Emergent =EM, Scrub-Shrub =SS, Forested =FO, Aquatic Bed (incl. SAV) =AB, Open Water =OW, Unconsolidated Bottom =UB, Unconsolidated Shore =US	Scrub-shrub
	PSSUB
HGM Class (Scores worksheet will suggest a class; see manual section 2.4.2)	Riverine
If tidal, the tidal phase during most of visit:	NA
What percent (approx.) of the wetland were you able to visit?	100
What percent (approx.) of the AA were you able to visit?	100
Have you attended an ORWAP training session? If so, indicate approximate month & year.	Yes
How many wetlands have you assessed previously using ORWAP (approx.)?	100+
Comments about the site or this ORWAP assessment (attach extra page if desired):	
AA includes wetlands above and below crossing - 25 ft. from centerline which is representative of creek throughout.	

ORWAP SCORES SHEET		Version 2.0.2 May 2012	
Site Name:	MAWLLCK-370		
Investigator Name:	John Gordon; Thad Jones		
Date of Field Assessment:	10/24/2012		
Latitude (decimal degrees):	44.3391	Longitude (decimal degrees):	-117.30435

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	2.71	2.50
Sediment Retention & Stabilization (SR)	3.24	5.95
Phosphorus Retention (PR)	4.64	6.00
Nitrate Removal & Retention (NR)	4.13	5.73
Thermoregulation (T)	6.11	3.33
Carbon Sequestration (CS)	2.78	
Organic Matter Export (OE)	7.33	
Aquatic Invertebrate Habitat (INV)	5.01	8.00
Anadromous Fish Habitat (FA)	0.00	4.45
Non-anadromous Fish Habitat (FR)	6.00	2.23
Amphibian & Reptile Habitat (AM)	3.29	5.33
Waterbird Feeding Habitat (WBF)	4.45	8.00
Waterbird Nesting Habitat (WBN)	0.00	5.33
Songbird, Raptor, & Mammal Habitat (SBM)	5.58	6.67
Pollinator Habitat (POL)	6.08	3.33
Native Plant Diversity (PD)	3.47	8.00

GROUPED FUNCTIONS	Group Scores (functions)	Group Scores (values)	
Hydrologic Function (WS)	2.71	2.50	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	6.11	6.00	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	2.78		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	6.00	4.45	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.33	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	6.08	8.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		2.38	(click on this cell to see this attribute defined)
Provisioning Services (PS)		2.00	(click on this cell to see this attribute defined)

OTHER ATTRIBUTES		
Wetland Ecological Condition (CQ)		4.29
Wetland Stressors (STR)		5.06
Wetland Sensitivity (SEN)		6.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	3.50
Slope	1.69
Flat	0.00
Depressional	0.00
Lacustrine	0.00

	A	B	C	D	E
1		Date: 10/24/2012	Site Name: MAWLLCK-370		
2	Office Data Form (OF). ORWAP version 2.0.2 May 2012. Answering many of the following questions requires viewing aerial imagery and maps, covering an area up to within 2 miles of the AA. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Do not write in any shaded parts of this data form. Questions whose cells in column D have a "W" MUST be answered only for the ENTIRE wetland. Italicized indicators pertain only to wetland values. Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. Please do not attempt to fill out this data form until you're familiar with the accompanying manual.				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	D1	<i>Mitigation Investment</i>	The AA is all or part of a mitigation site used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	[PUv+]
5			(no information)	0	
6	D2	<i>Conservation Investment</i>	The AA is part of or contiguous to a wetland on which public or private organizational funds were spent to preserve, create, restore, or enhance habitat mainly as part of a voluntary effort not used explicitly to offset impacts elsewhere (0= no, 1= yes)	0	voluntary= WRP, CRP, land trust easements with partial public funding, etc. Locations of some sites are shown online at: http://www.conservationregistry.org/ . Also, locations of OWEB-funded projects are mapped at http://www.oregonexplorer.info/owri_vistool/Intro.aspx [PUv+]
7			(no information)	0	
8	D3	Historically Lacking Trees	This AA (a) is not along (or in the biennial floodplain of) a large stream or river where riparian woodlands would be typical and (b) had a Presettlement vegetation class not dominated by trees as indicated by the Wetlands Explorer web site: www.oregonexplorer.info/wetlands/ORWAP . Enter 1 if both are true, 0= if not.	1	If the openness of the surrounding landscape is due almost entirely to agriculture and other human activities occurring within the past century, do not answer affirmatively. This question is used as a classification variable mainly to set appropriate expectations for the extent of surrounding forest cover. [INVc,FAc,FRC,SBMc,PD,CQc,SENSc]
9	D4	Enclosed by Roads	Draw a circle of radius of 2 miles centered on the AA. Within that circle, do paved roads completely encircle the AA? (0= no, 1= yes)	0	See illustration in Appendix A of the manual. Consider only paved roads expected to have at least 1 vehicle per hour, and which are visible in aerial imagery regardless of width. Presence of culverts or bridges along the roads is irrelevant. Do not consider other potential barriers to wildlife movement (e.g., large rivers, fields). A circle of any radius can be placed on aerial imagery at http://tnm2beta.cr.usgs.gov/viewer . Click on Imagery, then GIS Toolbox, Advanced, RangeRing. [AM-,SBM-,Stress+]
10	D5	Distance to Nearest Busy Road	The distance from the center of the AA to the nearest road with an average daytime traffic rate of at least 1 vehicle/ minute is:		Estimate the traffic rate using your judgment and considering the road width, local population, alternate routes, and other factors. [AM-,WBN-,SBM-, PD-,STR+]
11			>1 mile	0	
12			0.5- 1 mile	1	
13			1000-2600 ft	0	
14			500-1000 ft	0	
15			100-500 ft	0	
16			<100 ft	0	
17	D6	Forest Landscape Extent	Draw a circle of radius of 2 miles centered on the AA. Including the AA itself, the cumulative amount of forest (regardless of patch sizes) is:		Forested= woody vegetation currently taller than 20 ft, and with >70% canopy closure. [SBM+]
18			<5% of the circle	1	
19			5 to 20%	0	
20			20 to 50%	0	
21			50 to 80%	0	
22			>80%	0	

	A	B	C	D	E
23	D7	Forest Tract Proximity	The minimum distance from the AA edge to the closest forested tract or corridor larger than 100 acres is:		forested tract= a land cover patch that has >70% tree cover. A corridor is simply an elongated forested patch that is not narrower than 150 ft at any point. "Not separated" from the AA means not separated by roads or other features that create a tree canopy gap wider than 150 ft. [SBM+]
24			<100 ft, or 100-300 ft and not separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
25			100-300 ft and separated from the AA by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
26			300-1000 ft	0	
27			>1000 ft	1	
28	D8	Size of Nearby Forest	The largest patch or corridor within 0.5 mile of the AA edge that is forested (and not separated from the AA by roads, fields, etc. that create a gap wider than 150 ft), occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of forest where canopy thins to <70% cover, or where the forested patch becomes separated from the AA by a tree canopy gap of >150 ft or where the forested corridor narrows to less than 150 ft width. See diagram in Appendix A of the manual. Patch area can be measured at http://tnm2beta.cr.usgs.gov/viewer (GIS Toolbox, Advanced) or estimated online in GoogleEarth using the following guidelines: 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side [SBM+]
29			<1 acre of forest	1	
30			1-10 acres	0	
31			10-100 acres	0	
32			100-1000 acres	0	
33		>1000 acres	0		
34	D9	Natural Land Cover Extent	Within a 2-mile radius measured from the center of the AA, the percent of the land that has <i>natural land cover</i> (see definition on right) is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, <u>as well as</u> relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheat grass, Himalayan blackberry). Although some land cover types (e.g., crops) can vary greatly from year to year, report only the conditions known to prevail during the majority of the past 5 years, or if unknown, then the conditions found in the available aerial imagery. [AM+,SBM+]
35			<5% of the land	0	
36			5 to 20% of the land	0	
37			20 to 60% of the land	0	
38			60 to 90% of the land	0	
39		>90% of the land	1		
40	D10	Type of Land Cover Alteration	Within a 2-mile radius measured from the center of the AA, the area that is not "natural land cover" or water is mostly:		[POLv-,AM+,SBM+]
41			impervious surface, e.g., paved road, parking lot, building, exposed rock	1	
42			bare pervious surface, e.g., dirt or gravel road, plowed fields, dunes, recent clearcut or landslide	0	
43			cultivated row crops, orchards, vineyards, tree plantations	0	
44			artificially landscaped areas or lawn	0	
45			grassland grazed or mowed to a height usually shorter than 4 inches	0	
46			other	0	
47	(none of above; land cover is >90% natural land cover)	0			

	A	B	C	D	E
48	D11	Proximity to Natural Land Cover	The minimum distance from the AA edge to the edge of the closest tract or corridor of natural (not necessarily native) land cover larger than 100 acres, is:		Natural land cover includes wooded areas, native prairies, sagebrush, vegetated wetlands, as well as relatively unmanaged commercial lands such as ryegrass fields, hayfields, lightly grazed pastures, timber harvest areas, and rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, golf courses, recreational fields, pavement, bare soil, rock, bare sand, or gravel or dirt roads. Natural land cover is not the same as native vegetation. It frequently includes a dominance of non-native plants (e.g., cheatgrass, Himalayan blackberry). [POL+,INV+,AM+,SBM+,Sens-]
49			<100 ft, or the AA contains >100 acres of vegetation, or >100 acres of natural land cover is connected to the AA and is not separated from it by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	1	
50			<100 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
51			100-300 ft; and not separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
52			100-300 ft, but separated from the wetland by stretches of open water, bare ground, lawn, or impervious surface that are wider than 150 ft.	0	
53			NONE of the above	0	
54	D12	Size of Largest Nearby Tract or Corridor of Natural Land Cover	The largest patch or corridor that is natural land cover and is within 0.5 mile of the AA edge, and not separated from the AA by roads etc. that create gaps wider than 150 ft, occupies:		The patch or corridor may either be entirely or only partially within the 0.5 mile distance. Disqualify any patch or corridor of natural land cover where it becomes separated from the AA by a gap of >150 ft, if the gap is comprised of impervious surface, bare dirt, or lawn, or if the natural land corridor narrows to less than 150 ft. [POL+,AM+,WBN+,SBM+, Sens-] 1 acre is about: 200 ft on a side (if square) 10 acres is about: 660 ft on a side 100 acres is about: 0.5 mile on a side 1000 acres is about: 1 mile on a side
55			<1 acre	0	
56			1-10 acres	0	
57			10-100 acres	0	
58			100-1000 acres	0	
59			>1000 acres	1	
60	D13	Local Wetland Uniqueness	Within 0.5 mile of the center of the AA, the AA and vegetation of the same form that is contiguous to the AA together provide (select all that apply):		This question will require field verification. In all cases, the patch may be entirely within the wetland, or may cover only part of the wetland but extend into contiguous upland. Likewise the patches to which it is being compared may be entirely or only partially within the 0.5 mile radius. There is no minimum size limit. [POLv+,AMv+,WBNv+,SBMv+,PDv+]
61			the largest patch of currently ungrazed, unmowed, and unshaded herbaceous vegetation	0	
62			the largest patch of unshaded shrubland (excluding plantations)	0	
63			the largest patch of deciduous or evergreen trees (excluding plantations)	1	
64			NONE of above	0	
65	D14	Herbaceous Open Land in Landscape	Draw a circle of radius of 2 miles centered on the AA. The amount of herbaceous openland is:		Herbaceous openland can include (for example) pasture, herbaceous wetland, meadow, prairie, ryegrass fields, row crops, plowed land, herbaceous rangeland, golf courses, grassed airports, and hayfields but only if they are known to be in flat terrain (almost no noticeable slope). Do not include open water of lakes, ponds, or rivers. See photographs in Appendix A of manual. In dry parts of the state, croplands in flat areas are often irrigated and are distinctly greener in aerial images. [POLv+,WBF+]
66			<5% of the land	0	
67			5 to 20%	0	
68			20 to 50%	0	
69			50 to 80%	0	
70			>80%	1	
71	D15	Proximity to Open Land	The distance from the AA edge to the closest patch of herbaceous openland larger than 1 acre is:		See definition of herbaceous openland above, and photographs in Appendix A of manual.. Must be in flat terrain. [POLv+,WBF+]
72			<100 ft, or the AA contains >1 acre of such cover, or is contiguous to >1 acre of such cover	1	
73			100 to 300 ft	0	
74			300 to 1000 ft	0	
75			>1000 ft	0	

	A	B	C	D	E
76	D16	Ponded Water in Landscape	Draw a circle of radius of 2 miles centered on the AA. Including water ponded in the AA itself or in a fringing water body, the amount of non-tidal water that is ponded during most of the year is:		Ponded water = any surface water that is not obviously part of a river, stream, or tidal system. Include herbaceous (emergent) wetlands larger than 1 acre if they are inundated and water is ponded at least seasonally. Also include waters such as sloughs that are ponded most of the year but connected seasonally to rivers. Consult the online wetland maps at Wetland Explorer and note wetlands that are not obviously intersected by streams and are not estuarine [AM+,WBF+,WBN+,SBM+,Sens-]
77			<5% of the circle, located in 5 or fewer ponds or lakes	1	
78			<5% of the circle, located in >5 ponds or lakes	0	
79			5 to 30%, located in 10 or fewer ponds or lakes	0	
80			5 to 30%, located in >10 ponds or lakes	0	
81			>30%, located in 15 or fewer ponds or lakes	0	
82			>30%, located in >15 ponds or lakes	0	
83	D17	Ponded Water Proximity	The minimum distance from the AA edge to the closest non-tidal wetland, pond, or lake that is larger than 1 acre, is ponded most of the year, and is not part of the same associated wetland, pond, or lake, is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. "Uninterrupted" means no impervious surfaces wider than 150 ft interrupt the corridor. "Natural" land corridor means a corridor comprised of natural land cover as defined in D9 above. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [AM+,WBF+,WBN+,SBM+,Sens-]
84			<300 ft, and connected with a natural land corridor	0	
85			<300 ft, but no uninterrupted natural land corridor	0	
86			300-1000 ft, and connected with a natural land corridor	0	
87			300-1000 ft, but no uninterrupted natural land corridor	0	
88			>1000 ft, and connected with a natural land corridor	0	
89			>1000 ft, but no uninterrupted natural land corridor	1	
90	D18	Large Ponded Water Proximity	The distance from the AA edge to the closest (but separate) non-tidal body of water that is ponded during most of the year and is larger than 20 acres (about 1000 ft on a side) is:		If multiple smaller water bodies are separated by <150 ft they may be combined when evaluating acreage. Consult wetland maps, considering only those polygons whose water regime may be "permanent," "intermittently exposed," or "semipermanent" (codes F, G, or H on NWI maps). [WBF+,WBN+,Sens-]
91			<1 mile	0	
92			1-5 miles	0	
93			>5 miles	1	
94	D19	Tidal Proximity	The distance from the AA edge to the closest tidal body of water is:		[CS+,WBF+]
95			<1 mile	0	
96			1-5 miles	0	
97			>5 miles	1	
98	D20	Upslope Soil Erodibility Risk	Using the Web Soil Survey procedure described in the ORWAP manual, the rating of the soil map unit which occupies the largest percentage of the zone 200 ft uphill from the AA is:		See the ORWAP manual for instructions on how to obtain this information online. [SRv+, Sens+]
99			very severe	0	
100			severe	1	
101			moderate	0	
102			slight	0	
103	(could not determine)	0			

	A	B	C	D	E
104	D21	Extent of Dominant Vegetation Class in Wetland	Using the Web Soil Survey AOI tool to measure it, what is the area of the largest patch of emergent, shrub, or forest vegetation within the entire wetland of which the AA is a part? Use just the dominant class. See instructions in last column.		When drawing the polygon around the patch, exclude vegetation of the same patch type if separated by a gap created by open water, a road, dike, or upland that is wider than 150 ft. [WBF+, WBN+, SBM+, POL+, Sens-]
105			<0.1 acre	0	
106			0.1 - 1 acre	1	
107			1 to 10 acres	0	
108			10 to 100 acres	0	
109			100 to 1000 acres	0	
110			>1000 acres	0	
111	D22	<i>Wetland Size Uniqueness in Watershed</i>	From the Wetlands Explorer web site (see Manual), note the 12-digit code number for this wetland's HUC6 (Hydrologic Unit Code, i.e., watershed). Then turn to the HUC4, HUC5, and HUC6 worksheets in the ORWAP_SupplInfo file. Compare the extent of the wetland's dominant vegetation form (from above) with that of the largest wetlands of the same class in the same HUC4 (first 8 digits), the same HUC5 (first 10 digits), and the same HUC6 (12 digits). Enter "1" for all that apply below:		"of its type" means Cowardin system and class. First determine size importance in HUC6 and if criteria met, then also screen for importance in HUC5 and if met then in HUC4. Alternatively, instead of checking the worksheets, you may go to the Wetland Explorer web site, locate this wetland, activate the boundaries for wetlands plus the HUC4, 5, and 6, and then determine visually if this is the largest wetland of its class. Note that data are lacking for some HUCs. Also note that a HUC4 is the same as an 8-digit HUC, a HUC5 is the same as a 10-digit HUC, and a HUC6 is the same as a 12-digit HUC. [WBFv+, WBNv+, SBMv+]
112			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC4 watershed	0	
113			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC5 watershed	0	
114			the vegetated part of this wetland is as large or larger than any of its class mapped in its HUC6 watershed	0	
115			none of above	0	
116			data are inadequate (NWI mapping not >90% completed in HUC)	1	
117	D23	<i>Wetland Number & Diversity Uniqueness</i>	Turn to the HUCbest worksheet in the ORWAP_SupplInfo file. Using the HUC code noted from the web site, is this AA located in one of the HUCs that are listed as having a large diversity of wetland types relative to area of wetlands (column 3), or a large number (column 4) or area (column 5) of wetlands relative to area of the HUC? Enter "1" for all that apply below:		"type diversity" was based on Cowardin system and class (e.g., Palustrine emergent). Note that data are lacking for some HUCs. Because the diversity of types, number of wetlands, and proportional area of wetlands are highly intercorrelated, the criteria used to define "large" were based on the residuals of regression of those variables against wetland area or numbers in the associated HUC. Thus, the relative rather than the absolute number of types or number of wetlands in the HUC was the basis for judging "large," and the top 5% of the residuals was used to identify the most outstanding wetlands in each category. [AM+, WBF+, WBN+, SBM+]
118			yes, for the HUC4 watershed	0	
119			yes, for the HUC5 watershed	0	
120			yes, for the HUC6 watershed	0	
121			none of above	0	
122			data are inadequate (NWI mapping not completed in HUC)	1	

	A	B	C	D	E
123	To answer most of the following questions, you must obtain specific information from web sites or agencies as indicated in the Manual or in the last column (E). In a few cases you may need to also examine aerial imagery. In the Data column (D), change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated.				
124	D24	Historical Hydrologic Connectivity	Compared to extent of wetland that may have been originally present at this location (just prior to settlement in 1851), the current wetland is:	W	"Originally present" means immediately prior to widespread settlement of the region by western cultures (generally, about 1850). See ORWAP manual (section 2.2.8) for instructions on how to see hydric soils in the vicinity. If the hydric soil map units that intersect the wetland are together much larger than the wetland, assume fragmentation has occurred. If possible, also see maps of pre-settlement vegetation (available from ORNHIC for parts of Oregon), and topography. [CQ+]
125	same size and boundaries, approximately. For example, wetland boundary may be nearly identical to hydric soil boundary		0		
126	smaller (50-99% of the original size) and/or severed (by roads, dikes, drained soils, etc) from a few historically connected wetlands that may no longer exist. Soil map may show hydric soil extending somewhat beyond current wetland boundary.		1		
127	much smaller (<50% of the original size) and/or extensively severed (by roads, dikes, drained soils) from many historically connected wetlands that may no longer exist. Soil map may show hydric soil extending far beyond current wetland boundary.		0		
128	larger (due to damming of stream or runoff, excavation, removal of obstructions, irrigation, etc. that floods soils not mapped as hydric) or has been connected to wetlands from which it existed in isolation just prior to settlement.		0		
129	no wetland is known to have been present at this location originally (no hydric soil is mapped and presettlement vegetation was not wetland; the entire wetland may have resulted from impoundment, excavation, or regrading of upland soils)		0		
130	D25	<i>Special Conservation Designations of the Wetland or Local Area</i>	Go to the Oregon Wetlands Explorer web site or other sources noted below and use those to help determine each of the following:		See section 2.2.8 of the ORWAP manual.
131	a) the AA is within or is connected to (at least seasonally) a stream or other water body within 0.5 mile that has been designated as Essential Indigenous Anadromous Salmonid Habitat (ESH)		0	You must use information not contained on the Wetlands Explorer web site to determine if such a connection exists at least seasonally. If no mapped ESH is near the AA but ODFW has confirmed the accessibility of the AA by salmonids and the presence of salmonids in nearby waters, this question may be answered affirmatively. Many potential blockages along streams are shown in maps that may be downloaded from: http://nrimp.dfw.state.or.us/nrimp/default.aspx?pn=fishbarriermaps	
132	b) the AA is within or contiguous to a Special Protected Area managed by a conservation group or designated as specially protected for conservation by a state or federal resource agency,		0	This includes BLM Area of Critical Environmental Concern (ACEC) or Outstanding Natural Area (ONA), Federal Research Natural Area (RNA) or Special Interest Area (SIA), or Natural Heritage Conservation (NHCA), Land Trust and Nature Conservancy Preserves, and others.	
133	c) the AA is within or contiguous to a Wetland Priority Area as determined partly by ODFW		0	As recognized by the Oregon Wildlife Conservation Strategy or the Oregon Natural Heritage Program	
134	d) the AA is within an IBA (Important Bird Area, as officially designated) and listed in the IBA worksheet in the ORWAP_SupplInfo file		0		
135	NONE of above		1		

	A	B	C	D	E
136	D26	<i>Non-anadromous Fish Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-anadromous fish species in the vicinity of this AA is:		Species include Pit-Klamath brook lamprey (S3), Miller Lake lamprey (S1), Klamath lamprey (S3), Malheur mottled sculpin (S3), Margined sculpin (S3), Slender sculpin (S3), Alvord chub (S2), Tui chub (S), Borax Lake chub (S1), Speckled dace (SS), Oregon chub (S2), Umpqua chub (S2), Modoc sucker (S1), Klamath smallscale sucker (SS), Warner sucker (S1), Shortnose sucker (S1), Pit Sculpin (S1), Klamath Lake Sculpin (S3), Bull Trout (S3), Blue Chub (S3), Umpqua Dace (S3), Lahontan Redside (S2), Klamath Largescale Sucker (S3), Tahoe Sucker (S1), Lost River Sucker (S1), Sacramento Perch (S3). Note that for some of these species, only specific geographic populations are designated. S1 is the most imperiled, S3 less so, according to ratings by the Oregon Natural Heritage Information Center. [FRv+]
137	high (≥ 0.75 for maximum score, or ≥ 0.90 for this group's score sum), or there is a recent (within 5 yrs) onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
138	intermediate (i.e., not as described above or below)		0		
139	low (≤ 0.33 for both the maximum score this group's score sum, but not 0 for both)		0		
140	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
141	D27	<i>Invertebrate Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare invertebrate species in the vicinity of this AA is:		
142	high (≥ 0.75 for maximum score, or for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
143	low (< 0.75 for maximum score AND for this group's score sum, but not 0 for both)		0		
144	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
145	D28	<i>Amphibian or Reptile of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare amphibian or reptile species in the vicinity of this AA is:		Species include: Painted Turtle (S2), Northwestern Pond Turtle (S2), Clouded Salamander (S3), Oregon Slender Salamander (S2), Larch Mountain Salamander (S2), Siskiyou Mountains Salamander (S2), Cope's Giant Salamander (S2), Cascade Torrent Salamander (S3), Columbia Torrent Salamander (S3), Coastal Tailed Frog (S3), Inland Tailed Frog (S2), Northern Red-legged Frog (S3), Foothill Yellow-legged Frog (S2), Cascades Frog (S3), Northern Leopard Frog (S1), Oregon Spotted Frog (S2), Columbia Spotted Frog (S2), Great Basin Back-collared Lizard (S3), Desert Horned Lizard (S3), Night Snake (S3), Common Kingsnake (S3), Ground Snake (S3). [AMv+]
146	high (≥ 0.60 for maximum score, or >0.90 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
147	intermediate (i.e., not as described above or below)		0		
148	low (≤ 0.21 for maximum score AND <0.15 for score sum, but not 0 for both)		0		
149	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
150	D29	<i>Nesting Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare nesting waterbird species in the vicinity of this AA is:		Species include: Red-necked Grebe (S1), Am. White Pelican (S2), Snowy Egret (S2), Barrow's Goldeneye (S3), Bufflehead (S2), Yellow Rail (S1), Sandhill Crane (S3), Snowy Plover (S2), Black-necked Stilt (SS), Long-billed Curlew (S3), Franklin's Gull (S2), Caspian Tern (SS). [WBNv+]
151	high (≥ 0.60 for maximum score, or ≥ 1.00 for this group's score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
152	intermediate (i.e., not as described above or below)		0		
153	low (≤ 0.09 for maximum score and for score sum, but not 0 for both)		1		
154	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
155	D30	<i>Feeding (Non-breeding) Waterbird Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare non-breeding (feeding) waterbird species in the vicinity of this AA is:		"Non-breeding" mainly refers to waterbird feeding during migration and winter. [WBFv+]
156	high (≥ 0.33 for maximum score, or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
157	low (< 0.33 for maximum score and for score sum, but not 0 for both)		0		
158	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		

	A	B	C	D	E
159	D31	<i>Songbird, Raptor, Mammal Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare songbird, raptor, or mammal species in the vicinity of this AA is:		Species include: Bald Eagle (SS), Northern Goshawk (S3), Swainson's Hawk (S3), Ferruginous Hawk (S3), Peregrine Falcon (S1), Band-tailed Pigeon (S3), Flammulated Owl (S3), Burrowing Owl (S3), Spotted Owl (S3), Great Gray Owl (S3), Short-Eared Owl (SS), Common Nighthawk (SS), Lewis's Woodpecker (S3), White-Headed Woodpecker (S2), Black-Backed Woodpecker (S3), American Three-toed Woodpecker (S3), Pileated Woodpecker (SS), Olive-sided Flycatcher (S3), Willow Flycatcher (SS), Horned Lark (SS), Purple Martin (S2), White-breasted (Slender-billed) Nuthatch (SS), Blue-gray Gnatcatcher (S3), Varied Thrush (SS), Loggerhead Shrike (S3), Yellow-breasted Chat (SS), Chipping Sparrow (SS), Brewer's Sparrow (SS), Vesper Sparrow (SS), Sage Sparrow (SS), Grasshopper Sparrow (S2), Western Meadowlark (SS), Fringed Myotis (S2), Long-Legged Myotis (S3), California Myotis (S3), Silver-haired Bat (S3), Hoary Bat (S3), Spotted Bat (S2), Townsend's Big-eared Bat (S2), Pallid Bat (S2), Red Tree Vole (S3), Kit Fox (S1), Ringtail (S3), American Marten (S3), Fisher (S2), Columbian White-Tailed Deer (SS) . [SBMv+]
160	high (≥ 0.60 for maximum score, or >1.13 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
161	intermediate (i.e., not as described above or below)		1		
162	low (≤ 0.09 for maximum score AND <0.13 for score sum, but not 0 for both)		0		
163	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		0		
164	D32	<i>Plant Species of Conservation Concern</i>	According to the Wetlands Explorer web site, the score for occurrences of rare plant species in the vicinity of this AA is:		[PDv+]
165	high (≥ 0.75 for maximum score, or > 4.00 for score sum), or there is a recent onsite observation of any of these species by a qualified observer under conditions similar to what now occur		0		
166	intermediate (i.e., not as described above or below)		0		
167	low (≤ 0.12 for maximum score AND < 0.20 for score sum, but not 0 for both)		0		
168	zero for both this group's maximum and its sum score, and no recent onsite observation of these species by a qualified observer under conditions similar to what now occur		1		
169	D33	<i>Floodable Property</i>	According to the Wetlands Explorer web site:		Do not consider pasture or hayfields to be "cropland." See the ORWAP manual for instructions on how to obtain this information online at http://www.oregonexplorer.info/wetlands/ORWAP [WSv+]
170	The AA is tidal, or is either (a) not within a 100-yr floodplain of a river, or (b) there are no inhabited buildings or cropland within 2 miles downslope that are within the 100-yr floodplain. Mark "1" then SKIP TO D35.		1		
171	Inhabited buildings within 1 mile downslope from the AA also are within the 100-yr floodplain		0		
172	Croplands but no inhabited buildings are within 1 mile downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
173	Inhabited buildings within 1-2 miles downslope from the AA are also are within the 100-yr floodplain		0		
174	Croplands but no inhabited buildings are within 1-2 miles downslope from the AA, and that cropland is also within the 100-yr floodplain		0		
175	No floodplain data are available, and damage from river floods has not been known to have occurred within 2 miles downgradient. Mark "1" then SKIP to D35.		0		
176	D34	<i>Downslope Storage</i>	Between the AA and any floodable buildings or cropland located within 2 miles downslope:		"Seasonally ponded areas" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-]
177	river flow is regulated and there are many seasonally ponded areas capable of storing water.		0		
178	river flow is regulated or there are many seasonally ponded areas capable of storing water.		0		
179	NONE of the above		0		

	A	B	C	D	E
180	D35	Relative Elevation in Watershed	According to Wetlands Explorer map showing this AA's position within its HUC4 (8-digit) watershed, the AA is [see last column and Manual for specific guidance]:		1) Which end of the HUC4 is the bottom? Where streams join, the "V" that they form on the map points towards bottom of the HUC. 2) If the AA is closer to the HUC4's outlet than to its upper end, and is closer to the river or large stream that exits at the bottom of the HUC4 than it is to the boundary (margin) of the HUC4, then check "lower 1/3" If not near that river, check "middle 1/3". 3) If the AA is not in a 100-yr floodplain, is closer to the HUC4 upper end than to its outlet, and is closer to the boundary (margin) of the HUC4 than to the river or large stream that exits at the bottom of the HUC4, then check "upper 1/3" 4) For all other conditions, check "middle 1/3".
181	in the upper one-third of its watershed		0		
182	in the middle one-third of its watershed		0		
183	in the lower one-third of its watershed		1		
184	D36	Contributing Area (CA) Percent	Based on the definition and protocol in the ORWAP manual, the area of the wetland of which this AA is a part, relative to the wetland's contributing area (CA) is:	W	The CA is basically the upslope area that has the potential to deliver water to the wetland. The CA boundary typically does not cross any streams or ditches except the one at the wetland outlet (if any). Remember that if the wetland is flooded as little as once every 2 years by river flow, the CA includes all upslope areas that feed that river. If the wetland is on the fringe of a pond or lake, compare the area of that water body to its contributing area -- not the area of the wetland compared to only the wetland's contributing area. For most wetlands, and especially ones containing tributaries, the first choice will be the most appropriate. For AA's that are intercepted by a mapped stream, delineation and area calculation for the CA will be done automatically at this USGS web site: http://streamstats.usgs.gov/orstreamstats/index.asp . Enter the coordinates, zoom to scale of 1:24000 or finer, click on the stream, and click on Basin Delineation, then BasinChar. [WSv+,SRv+,PRv+,NRv+, Sens+]
185	<1% of its CA (true if wetland is tidal, or along major river, or has many tributaries, or gets substantial water drawn from other surface water bodies, e.g., flood irrigation)		1		
186	1 to 10% of its CA		0		
187	10 to 100% of its CA		0		
188	Larger than the area of its CA (wetland has essentially no CA, e.g., isolated by dikes with no input channels, or is in terrain so flat that a CA can't be delineated). SKIP TO D40.		0		
189	D37	Unvegetated Surface in the Contributing Area	The proportion of the CA comprised of buildings, roads, parking lots, other pavement, exposed bedrock, and other impervious surface is about :	W	[WSv-,SRv-,PRv-,NRv-]
190	>25%		0		
191	10 to 25%		0		
192	<10%, or wetland is tidal		1		
193	D38	Upslope Storage	The cumulative area of seasonally ponded areas in the same CA is:	W	"Seasonally ponded area" includes (for example) detention ponds, reservoirs, and depressional wetlands [WSv-,SRv-,PRv-,NRv-]
194	Much (>10x) greater than the area of this wetland (plus any contiguous pond or lake), or inflow is strongly regulated by dams etc.		1		
195	Somewhat greater than the area of this wetland (plus any contiguous pond or lake) and flows to wetland are not strongly regulated		0		
196	Less than the area of this wetland (plus any contiguous pond or lake), or wetland is tidal, or no upslope wetlands/ ponds and no inflow regulation		0		
197	D39	Transport From Upslope	A relatively large proportion of the precipitation that falls farther upslope in the CA reaches this wetland quickly as runoff (surface water), as indicated by the following: (a) input channel is present, (b) CA slopes are steep, (c) input channels have been straightened, (d) upslope wetlands have been ditched extensively, (e) land cover is mostly non-forest, and/or (f) most CA soils are shallow and/or have high runoff coefficients). This statement is:	W	[WSv+,SRv+,PRv+,NRv+]
198	Mostly true		1		
199	Somewhat true		0		
200	Mostly untrue, or wetland is tidal		0		

	A	B	C	D	E
201	D40	Known Water Quality Issues in the Input Water	Within 1 mile upstream from the wetland, at least one of the major sources of surface water to this wetland (at least seasonally) has been designated as Water Quality Limited (303d) for at least one of the parameters below. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
202	total suspended solids (TSS), sedimentation, or turbidity		0		
203	phosphorus		0		
204	nitrate or ammonia		0		
205	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
206	temperature		0		
207	None of above, or degraded water cannot reach wetland, or no data.		1		
208	D41	Known Water Quality Issues Below the Wetland	Within 1 mile downstream or downslope from this wetland, there is at least one stream or other water body that has been designated as Water Quality Limited (303d) for at least one of the parameters below. The water body need not be connected to the AA. Obtain from web site only -- do not guess. Select all that apply.	W	See the ORWAP manual (section 2.2.7) for instructions on how to obtain this information online at http://deq12.deq.state.or.us/lasar2/default.aspx [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
209	total suspended solids (TSS), sedimentation, or turbidity		0		
210	phosphorus		0		
211	nitrate or ammonia		0		
212	toxics, dioxin, heavy metals (iron, manganese, lead, zinc, etc.)		0		
213	temperature		0		
214	None of above, or no data. Mark "1" then SKIP TO D43.		1		
215	D42	Type of Outflow Connection to 303d	At least part of the AA is connected to the downstream 303d water mentioned in D41 above:		persistent water= flows for more than 9 months during most years. [SRv+,PRv+,NRv+,TRv+,INV-,WBF-,WBN-,STR+]
216	for 9 or more continuous months annually (persistent water in a stream, ditch, lake, or other water body)		0		
217	intermittently (at least once annually, but for less than 9 months continually)		0		
218	Not connected, or connected less than annually		0		
219	D43	Drinking Water Source (DEQ)	According to the ODEQ LASAR database, the AA is within:		See the ORWAP manual (section 2.2.7) for instructions on obtaining this online from http://deq12.deq.state.or.us/lasar2/default.aspx [NRv+]
220	the source area for a surface-water drinking water (DW) source		0		
221	the source area for a groundwater drinking water source		1		
222	Neither of above		0		
223	D44	Groundwater Risk Designations	The AA is (select all that apply):		[NRv+]
224	within a designated Groundwater Management Area (ODEQ), see maps in Appendix A of ORWAP manual.		0		
225	within a designated Sole Source Aquifer area (EPA): the North Florence Dunal Aquifer. See map downloadable from: http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml		0		
226	NONE of above		1		
227	D45	Mean Annual Precipitation	According to the PRISM Data Explorer (see ORWAP manual for instructions), annual precipitation in the vicinity of the wetland has normally been:		Obtain online as explained in Manual from: http://gisdev.nacse.org/prism/nn/index.phtml These categories reflect the 10th, 25th, 50th, 75th, and 90th percentiles of all points in a comprehensive spatial grid of annual precipitation points in Oregon, for the years 1971-2000. [INVv+,AMv+,WBFv+,WBNv+,SBMv+,PDv+,Sens-]
228	<10 inches per year		0		
229	10-12 inches per year		0		
230	13-19 inches per year		1		
231	20-47 inches per year		0		
232	48-77 inches per year		0		
233	>77 inches per year		0		

	A	B	C	D	E
234	D46	County Rank for Phosphorus Loading	The phosphorus loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of P per sq. km.) from fertilizer (2001) and livestock (average of the years 1982, 1987, 1992, and 1997). [PRv+]
235			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
236			top 18 (see Table 6 in WQprob worksheet in file ORWAP_SupplInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	0	
238			bottom 4 (Josephine, Hood River, Lincoln, Clatsop)	0	
239	D47	County Rank for Nitrogen Loading	The nitrogen loading rank of the county in which the AA is located is: (select one); see WQprob worksheet in ORWAP SupplInfo file.		Determine county from a map or online from http://deq12.deq.state.or.us/lasar2/default.aspx as explained in Manual. Data used for these rankings are from a national survey by USGS and represent the combined inputs (kg of N per sq. km.) from fertilizer, livestock, and atmospheric deposition of N during 2001. [NRv+]
240			top 4 in Oregon (Marion, Malheur, Umatilla, Linn)	1	
241			top 18 (see Table 7 in WQprob worksheet)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	0	
243			bottom 4 (Curry, Josephine, Lincoln, Clatsop)	0	
244	Answer these final two questions only if the AA is tidal.				
245	D48	Estuarine Position	The AA's relative position in the estuary is (SKIP if nontidal):		[WSv+,PR+,PD+]
246			lower 1/3 (often on a bay and distant from the head-of-tide of a major river; includes most saline tidal wetlands)	0	
247			mid 1/3	0	
248			upper 1/3 (near the head-of-tide of a major river; includes most brackish and fresh tidal wetlands)	0	
249	D49	Salinity	The usual maximum water-surface salinity during high tide in summer in the main channel or bay closest to the AA is (SKIP if nontidal):		Refer to Estuary Salinity maps at http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml or (preferably) determine this from field measurement or from data at the ODEQ LASAR web site (see ORWAP manual for instructions on accessing those data). [SR-,PR-,CS+,OE+,FA-,PD-]
250			>30 parts per thousand (undiluted seawater)	0	
251			5-30 ppt (mesohaline, polyhaline)	0	
252			0.5 - 5 ppt (oligohaline)	0	
253			<0.5 ppt (fresh)	0	
254		no data for nearby locations found at the ODEQ LASAR web site or from other sources	0		

	A	B	C	D	E
1		Date: 10/24/2012	Site Name: MAWLLCK-370		Investigator: JOHN GORDON; THAD JONES
2	<p>Field F data form. ORWAP version 2.0.2 May 2012. In the Data column, change the 0 (false) to a 1 (true) for the best choice, or for multiple choices where allowed and so indicated. Answer these questions primarily based on your onsite observations and interpretations. Do not write in any shaded parts of this data form. Answering some questions accurately may require conferring with the landowner or other knowledgeable persons, and/or reviewing aerial imagery. Although accuracy will be greater if questions are answered for the entire wetland (not limiting only to the part potentially affected by a project), most questions may be answered for just part of a wetland-- the assessment area (AA). HOWEVER, questions with a W in the gray box in column D must be answered for the ENTIRE wetland of which the AA is a part.</p>				
3	#	Indicator	Conditions	Data	Explanations, Definitions
4	F1	Presence of Specific Wetland Types	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply.	W	
5			Tidal wetland: receives tidal water at least once during a normal year, regardless of salinity, and dominated by emergent or woody vegetation.	0	tidal = level of surface water fluctuates every ~6 hours on a daily basis in response to tides. [All functions, as classifier]
6			Lacustrine wetland: an undiked non-tidal wetland bordering a body of standing open water that is >20 acres.	0	open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species). [WBN+]
7			Fringe wetland: an undiked "shoreline" wetland bordering persistent open water that is >3 times wider than the wetland (includes most tidal, lacustrine, large riverine, some others).	1	[WSv-, T-, FA+,FR+, WBF+]
8			NONE of above	0	
9	F2	Wetland Type of Conservation Concern	Does the AA contain, or is it part of, any of these wetland types? Mark "1" next to all that apply. Consult the "Rare Wetland Type" reported for the general vicinity by the Oregon Explorer web site, but be aware that those may not apply to the exact AA you have delimited.	W	
10			Bog or Fen: contains a sponge-like organic soil layer which covers most of the AA AND often has extensive cover of sedges and/or broad-leaved evergreen shrubs (e.g., <i>Ledum</i>). Often lacks tributaries, being fed mainly by groundwater and/or direct precipitation.	0	[CS+,Sens+]
11			Playa, Salt Flat, or Alkaline Lake: a non-tidal ponded water body usually having saline (salinity >1 ppt or conductivity >1000 µS) or alkaline (conductivity >2000 µS and pH >9) conditions and large seasonal water level fluctuations (if inputs-outputs unregulated). If a playa or salt flat, vegetation cover is sparse and plants typical of saline or alkaline conditions (e.g., <i>Distichlis</i> , <i>Atriplex</i>) are common.	0	See file ORWAP_SupplInfo, worksheet P_Salt for species typically occurring in tidal or saline conditions. [PR+,CS+,INV+,FA-,FR-,AM-,WBF+]
12			Hot spring (anywhere in Oregon): a wetland where discharging groundwater in summer is >10 degrees (F) warmer than the expected water temperature.	0	[FA-]
13			Native wet prairie (west of the Cascade crest): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, and dominated primarily by native graminoids often including species in column E.	0	<i>Deschampsia caespitosa</i> , <i>Danthonia californica</i> , <i>Camassia quamash</i> , <i>Triteleia hyacinthina</i> , <i>Carex densa</i> , <i>C. aperta</i> , and/or <i>C. unilateralis</i> [PDv,CQc]

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14			Vernal pool (Willamette Valley): a seasonally inundated wetland, underlain by hardpan or claypan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and with native plant species distinctly different from those in slightly higher areas, and often including species in column E.	0	Downingia elegans, Isoetes nuttallii, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys figuratus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Lasthenia glaberrima, Cicendia quadrangularis, Kickxia elatine, Gnaphalium palustre, and/or Callitriche spp. [PDv]
15			Vernal pool (Medford area): a seasonally inundated acidic wetland, underlain by hardpan, with hummocky micro-relief, usually without a naturally-occurring inlet or outlet, and having concentric rings of similar native vegetation, often including species in column E.	0	Downingia vina, Isoetes nuttalli, Pilularia americana, Triteleia hyacinthina, Eleocharis spp., Eryngium petiolatum, Plagiobothrys brachteatus, Plagiobothrys scouleri, Grindelia nana, Veronica peregrina, Alopecurus saccatus, Lasthenia californica, Deschampsia danthonioides, and/or Callitriche spp. [PDv]
16			Vernal pool (Modoc basalt & Columbia Plateau): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located on shallow basalt bedrock and often having species in column E.	0	Blennosperma nanum, Camassia quamash, Epilobium densiflorum, Callitriche marginata, Cicendia quadrangularis, Eryngium vaseyi, Psilocarphus brevissimus, and/or Sedella pumila. [PDv]
17			Interdunal wetland (Coastal ecoregion): a seasonally inundated wetland, usually without a naturally-occurring inlet or outlet, located between sand dunes where wind has scoured the sand down to the water table (deflation plain), and often with significant cover of native species in column E.	0	Carex obnupta, Argentina egedii, Juncus lesueurii, J. nevadensis, J. falcatus, Sisyrinchium californicum, and/or Salix hookeriana [PDv]
18			Mature forested wetland (anywhere): a wetland in which mean diameter of trees (d.b.h., FACW and FAC species only) exceeds 18 inches, and/or the average age of trees exceeds 80 years, or there are >5 trees/acre with diameter >32 inches.	0	To qualify, the diameter of >18 inches must be the mean measured from at least 10 trees. [PDv]
19			Ultramafic soil wetland (mainly southwestern Oregon): a low-elevation wetland, usually with a sponge-like organic soil layer, occurring in an area with exposed serpentine or peridotite rock, and/or in soils with very low Ca:Mg ratios.	0	[PDv]
20			Wooded tidal wetlands with >30% cover of trees and shrubs. A wetland inundated at least once annually by tides and often dominated by woody plant species.	0	The plant species may include Sitka spruce, crabapple, and/or others [PDv]
21			Undiked tidal freshwater wetland: an emergent or wooded wetland inundated at least once annually by tides and with surface salinity <0.5 ppt during most of spring and summer, and which has never been diked.	0	[PDv]
22			NONE of above	1	

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23		Is part of the site tidal? If yes, answer next 2 questions. If no, SKIP TO # F5.			
24	F3	Low Marsh	The percent of the vegetated part of the AA that is "low marsh" (covered by tidal water for part of almost every day) is:		Include any natural channels within the marsh that are inundated at least once daily by tide. See file ORWAP_SupplInfo, worksheet P_LowTidal. [WS-,OE+,POL-,INV+,FA+,FR+,WBF+,WBN-,SBM-,PD-]
25			>95% of the AA	0	
26			50-95% of the AA	0	
27			25-50% of the AA	0	
28			1-25% of the AA	0	
29			<1% or none of the AA (high marsh only)	0	
30	F4	Tidal-Nontidal Hydroconnectivity	This tidal wetland is (select one):	W	contiguous= abutting, with no major physical separation that prohibits free exchange or flow of surface water, if any is present. See diagram in Appendix A of the manual. [FA+,WBF+,WBN+,PD+]
31			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, and mostly not separated by a dike or other barrier, allowing fish access to both wetlands during spring.	0	
32			contiguous to a non-tidal palustrine wetland that contains surface water at least seasonally, but mostly separated by a dike or other barrier, yet still allowing fish access to both wetlands during spring.	0	
33			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland < 1 mile upstream.	0	
34			not contiguous to a non-tidal palustrine wetland that contains surface water, but has an inflowing stream that allows fish during the springtime to access a non-tidal wetland > 1 mile upstream.	0	
35			not contiguous to a non-tidal palustrine wetland, and lacks an inflowing non-tidal stream that provides fish access to an upstream wetland that contains surface water at least seasonally.	0	
36	F5	Interrupted Hydroperiod	Select one:		[PR-,NR-,CS-,OE+,INV+,FR-,WBF+,WBN+,PD+]
37			during 4 of the last 5 years most of the AA has been covered year-round with surface water, but that part went mostly dry during at least one unusual event.	0	
38			during 4 of the last 5 years most of the AA has been dry year-round on the surface (i.e., saturated only below the surface), but during at least one unusual event most of that part was flooded, even if only briefly.	0	
39			neither of above	1	
40			unknown	0	
41	F6	Saturated-only Wetland	No part of the AA is ever inundated (contains at least 1 inch of water above the land surface) for more than 14 consecutive days during a normal year. That is, it is a saturated-only wetland. If true, mark "1" here, then SKIP TO F39 (Herbaceous Extent)	0	[classifier for all functions]
42	F7	Seasonal Water Extent	During normal years, the percent of the AA that is inundated only seasonally (more than 14 consecutive days but no more than 9 months, or in tidal wetlands is "high marsh" that is inundated by tides fewer than half the days in any month) is:		Flood marks (algal mats, adventitious roots, debris lines, ice scour, etc.) are often evident when not fully inundated. Also, such areas often have a larger proportion of upland and annual (vs. perennial) plant species. Vegetation may be patterned in concentric or parallel zones, as one moves outward & away from the deepest part of the wetland or channel. Although useful only as a general guide, the NRCS county soil survey descriptions of the predominant soil types usually includes information on flooding frequency and saturation persistence. [WS+,SR+,NR+,CS+,OE+,INV-,FA+, AM-, Sens+]
43			>75% of the AA	0	
44			50-75% of the AA	1	
45			25-50% of the AA	0	
46			5-25% of the AA	0	
47			<5% of the AA, or none	0	

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48	F8	Extent of Persistent Surface Water (Dry Season)	When the AA's surface water is at its lowest annual level, the percent of the AA still containing surface water (whether obscured by vegetation or not) is:		For tidal sites, consider the condition that would exist at annual lowest tide. Indicators of persistence may include fish, some dragonflies, beaver, and muskrat. In the county soil survey, the NRCS descriptions of the predominant soil types may include information on saturation persistence in those types. [WS-,PR-,NR-,CS-,POL-,INV+,FR+,AM+,WBF+,WBN+,SB-]
49			>95% of the AA	0	
50			50-95% of the AA	0	
51			25-50% of the AA	1	
52			1-25% of the AA	0	
53			None of the above, and the AA contains or is part of a fringe wetland, SKIP to F10	0	
54			None of the above, and not a fringe wetland, SKIP to F10	0	
55	F9	Onsite Surface Water Isolation (Dry Season)	When the AA's surface water is at its lowest annual level (for tidal wetlands = annual lowest tide), the percent of the surface water that is in or connected to flowing channels that exit the AA, compared to surface water that is outside of channels and their floodplains (e.g., in small depressions that do not connect annually to the channel if any), is:		For tidal sites, consider the condition at annual lowest tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. [WS+, SR+,PR+,NR+,OE-,T-,INV+,FA-,FR+,AM+,WBF+,WBN+,Sens+]
56			all (100%) located in channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year	1	
57			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
58			50-75% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 25-50% in isolated pools	0	
59			25-50% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 50-75% in isolated pools	0	
60			1-25% in or connected to channels, swales, or other areas with a surface water connection to a river, lake, or estuary at all times of year, 75-99% in isolated pools	0	
61			all located in isolated pools or a single isolated pond from which no surface water exits when levels are lowest	0	
62	F10	Onsite Surface Water Isolation (Wet Season)	During the wettest time of a normal year, the percent of the surface water that is in or connected to ditches, swales, or flowing channels that exit the AA, compared to surface water that is in isolated pools that do not connect annually to channels or swales (if any), is:		For tidal sites, consider the condition at mean high tide. See DSL web site for general maps of waters that may be tidal. Swales and channels are areas that have surface flow for at least 2 consecutive days per year. Swales are less distinct (broader and flatter in cross-section) than channels. Sites fed by unregulated streams that descend on north-facing slopes tend to remain wet longer into the summer, especially in montane snow-fed areas.[WS+, SR+,PR+,NR+,CS+,OE-,INV+,FA-,FR+,AM+,WBF+]
63			all (100%) located in channels, swales, or in other areas with a wet-season surface connection to channels or to a contiguous lake or estuary	1	
64			75-99% in or connected to channels, swales, or contiguous lake/ estuary, 1-25% in isolated pools	0	
65			50-75% in or connected to channels, swales, or contiguous lake/ estuary, 25-50% in isolated pools	0	
66			25-50% in or connected to channels, swales, or contiguous lake/ estuary, 50-75% in isolated pools	0	
67			1-25% in or connected to channels, swales, or contiguous lake/ estuary, 75-99% in isolated pools	0	
68			all located in isolated pools or a single isolated pond from which no surface water exits	0	

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69	F11	Predominant Water Fluctuation Range	During most years, the difference in surface water level between the driest and wettest time of year in most of the area that is not inundated year-round is:		[WS+,PR-,NR+,CS-,OE+,INV-,AM-,WBN-]
70	>6 ft change		0		
71	3-6 ft change		0		
72	1-3 ft change		0		
73	0.5 - 1 ft change		1		
74	<0.5 ft or no change (stable)	0			
75	F12	Predominant Depth Class	When present, surface water in most of the AA is usually:		"Usually" means the majority of the weeks during which the AA is at least partly inundated. This question is asking about the spatial median depth that occurs during most of that time, even if inundation is only seasonal or temporary. If inundation in most but not all of the AA is brief, the answer will be based on the depth of the most persistently inundated part of the AA. Include surface water in channels and ditches as well as ponded areas. See diagram in Appendix A of the manual. For tidal sites, assess the condition as it exists at mean high tide. [SR+,PR+,CS-,OE-,T+,INV-,FA+,FR+,WBF-,WBN-,PD-,Sens-]
76	>6 ft deep		0		
77	2-6 ft deep		0		
78	1-2 ft deep		0		
79	0.5 - 1 ft deep		1		
80	<0.5 ft deep (but >0)	0			
81	F13	Depth Class Distribution	When present, surface water in most of the AA usually consists of (select one):		Estimate these proportions by considering the gradient and microtopography of the site. See diagram in Appendix A of the manual. For tidal waters, estimate at mean high tide. [INV+,FR+,WBF+,WBN+]
82	One depth class (use the classes in F12) that comprises >90% of the AA's inundated area		1		
83	One depth class that comprises >50% of the AA's inundated area		0		
84	Neither of above		0		
85	F14	Deep Spots	Ponded nontidal water deeper than 3 ft covers at least 1 acre or >5% of the AA during (check all that apply):		[AM+, WBN+]
86	most of the period (generally, November-April) when waterfowl are migrating or wintering, and/ or amphibians are in aquatic phases		0		
87	most of the period (generally, May-August) when waterfowl are breeding		0		
88	neither of above (no ponded water >3 ft deep is that extensive)		1		
89	impossible to tell		0		
90	F15	Open Water Interspersion With Partly Inundated Vegetation	Visualize the extent and distribution of ponded open water within the AA, relative to the distribution of the most dominant form of partly-submerged vegetation (herbaceous or woody, with stems and leaves >4" above the water surface). Visualize this as it occurs during May of most years. In the table to the right, first estimate the percent open water (left column) in the AA, then its distribution (secondary header). Select the highest applicable number and enter it in column D. See photographs in Appendix A of manual. If the AA has no ponded water during May, score it "1." If this is a fringe wetland, assume Open Water is >70%.	1	[NR+,OE+,INV+,FA+,FR+,WBF+,WBN+]
91	Note: Ponded open water is surface water that is not visibly flowing and contains no vegetation (except perhaps floating-leaved or completely submersed species) and is not beneath a canopy of trees or shrubs. For tidal sites, consider the condition at average mid-tide.				

open water as % of AA	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
	with open water in many small patches	inter-mediate	open water in one/ few larger patches	with open water in many small patches	inter-mediate	open water in one/ few larger patches
>70	19	15	6	12	9	3
30-70	20	16	7	14	10	4
1-30	18	14	5	11	8	2
<1	1	1	1	1	1	1

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92	F16	Inflow	When surface water enters the AA, it enters as (select all applicable choices):		[HGM, Sens]
93			flow moving in streams, ditches, other channels	1	
94			surface water exchanged broadly as overflow with contiguous waters such as an estuary, lake, or river	0	
95			water pumped into or intentionally diverted to the AA, e.g., as part of a stormwater dispersion system, irrigation practice, or drainage tile outlet	0	
96			groundwater, runoff, and direct precipitation	0	
97	F17	Groundwater	Select one:	W	If discharging groundwater in summer is warmer than ambient air temperature, answer "None of the above." [NR+,CS+,T+,POL+,INV+,FA+,AM+,HGM]
98			Part of the wetland contains strong evidence of groundwater discharges at the wetland surface during summer: (a) Springs are observed or are shown on Wetland Explorer map, or (b) water is cooler in summer and warmer in winter than in other local wetlands, or (c) measurements from shallow wells indicate groundwater is discharging to the wetland.	0	
99			Part of the wetland has less definitive evidence of discharging groundwater during summer. Wetland has no perennial tributary and is on organic, sandy, or gravelly soil (as determined in F58) AND has one or more: (a) outflow is present and persists during most of the summer or (b) on a natural slope of >5%, or (c) very close to the base of a natural slope steeper than 15%, and longer than 300 ft, or (d) located at a geologic fault, or (e) has rust deposits, colored precipitates, or dispersible natural oil sheen, or (f) within a mile of the top of a HUC4 watershed (see Wetland Explorer for boundaries).	0	
100			Neither of above is true, although some groundwater may discharge to or flow through the wetland, and wetland is in a region of eastern Oregon with mean annual precipitation of less than 20 inches.	1	
101			None of the above	0	
102	F18	Outflow Duration	The most durable surface water connection between the wetland and the closest contiguous and/or downslope surface waters is:	W	The connection may be via a ditch, pipe, tidegate, or culvert as well as through a natural channel, floodplain, or overflow area. Do not rely only on topographic or NWI maps to show this; inspect while in field. The frequencies given are only approximate and are for a "normal" year. The inundation need not occur during the "growing season." See photographs in Appendix A of manual. [WS-,SR+,PR+,NR+,CS-,OE+,T+,FA+,FR+,Sens-]
103			persistent (>9 months/yr), or daily tidal exchange	1	
104			seasonal (14 days to 9 months/yr, not necessarily consecutive)	0	
105			temporary (<14 days, not necessarily consecutive)	0	
106			none -- the wetland lacks an outlet. If so, mark "1" here and SKIP TO F25 (Sheltering of Water).	0	
107	F19	Outflow Confinement	During major runoff events, in the places where surface water exits the wetland it is:	W	"Impeded" means causing a delay or reduction in water velocity or volume. "Major runoff events" would include biennial high water causes by storms and/or rapid snowmelt. [WS-,SR+,PR+,NR+,CS-,OE+,FA+,FR+,Sens-]
108			impeded by a pipe, culvert, tidegate, narrowly breached dike, berm, beaver dam, or other obstruction (other than natural topography), or water is pumped out of the wetland (e.g., for irrigation)	0	
109			not impeded by anything other than (possibly) natural topography	1	
110	F20	Inlet+Outlet	Either the wetland has BOTH an inlet and outlet with seasonal or persistent surface flow, or the wetland is fringe or tidal. If so, enter "1" here and continue. If neither condition met, enter "0" here and then SKIP to F25 (Sheltering of Water).	1	The inflow and outflow from the wetland may be via a shallow ditch, pipe, or culvert, or as overbank flow in a floodplain (which counts as both an inlet and outlet). Do not rely only on topographic or NWI maps to show this; inspect while visiting the site.
111				W	

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112	F21	Throughflow Complexity	During peak annual flow, most of the surface water that flows through the AA:		This mainly refers to surface water that moves between the inlet and outlet. Some judgment is required in assessing straight vs. indirect flow path. See diagram in Appendix A of the manual. [WS+,SR+,PR+,NR+,CS+,INV+,FA+,FR+,WBF+,WBN+]
113			encounters little or no vegetation, boulders, or other sources of friction, or no flowing water is present	0	
114			mostly encounters herbaceous vegetation that offers little resistance, and water follows a fairly straight path from entrance to exit (few internal channels, only slight meandering)	0	
115			mostly encounters herbaceous vegetation that offers little resistance and follows a fairly indirect path from entrance to exit (non-channelized flow or many internal channels, or very braided or tightly meandering)	0	
116			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody plants) or channel-clogging debris, and follows a fairly straight path from entrance to exit.	0	
117			encounters measurable resistance from fairly-rigid vegetation (e.g., cattail, bulrush, woody species) or channel-clogging debris, and follows a fairly indirect path from entrance to exit.	1	
118	F22	Vegetated Zone Relative Width	During most of the time open water is present in the AA, vegetated areas within the AA, where they are contiguous to open water, are:		open water = surface water that contains no vegetation (except perhaps floating-leaved or completely submersed species) when viewed from above. May include channels, ditches, ponded areas, regardless if seasonal, persistent, or temporary. For tidal areas, assess condition as it exists at mean high tide [SRv+,PRv+,NRv+, CS+,OE-,Sens-]
119			wider than the contiguous open water	1	
120			narrower than the contiguous open water (i.e., fringe wetlands)	0	
121	F23	Vegetated Zone Absolute Width	The average width of vegetated area in the AA that separates adjoining uplands (if any) from contiguous open waters (if any) is:		Note: For most sites larger than 10 acres and with persistent water, measure the width using aerial imagery rather than estimate in the field. For tidal areas, assess condition as it exists at mean high tide. [SR+,PR+,NR+, CS+,OE-,WBN+,Sens-]
122			>300 ft, or no contiguous upland or open waters (not even temporary)	0	
123			100-300 ft	0	
124			25-100 ft	0	
125			5-25 ft	1	
126	<5 ft	0			
127	F24	Undercut Banks	The percent of the AA's water edge, if any, that has undercut banks that are partially visible above the water is:		water edge= streambank (both sides) or other edge between open water and soil. undercut= indented such that surface water flows beneath a canopy layer of soil, tree roots, or sod. At tidal sites, assess this at mid-tide. [FA+,FR+,AM+]
128			>75%	0	
129			50-75%	0	
130			25-50%	0	
131			1-25%	0	
132			<1%, or no definable water edge is present	1	
133	cannot estimate	0			
134	F25	Sheltering of Water	At mid-day in summer, the area of surface water within the AA that is shaded by herbaceous or woody vegetation, incised channels, streambanks, or other features also present within the AA is:		For tidal sites, consider the condition at mean low tide. For all sites, consider the aspect and surrounding topographic relief as well as vegetation height and density. [T+,FA+]
135			>75% of the water	1	
136			50-75% of the water	0	
137			25-50% of the water	0	
138			5-25% of the water	0	
139			<5% of the water	0	
140	(surface water is typically absent in summer or during low tide)	0			

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141	F26	Abovewater Wood	The number of downed wood pieces thicker than 4 inches that remain only partly underwater during most of the spring or early summer, thus potentially serving as basking sites for turtles, birds, or frogs, is:		For tidal sites, consider the condition at mean high tide. Only the wood that is at or above the water surface is assessed because of the impracticality of assessing underwater wood accurately when using a rapid assessment method. [FA+,FR+,AM+,WBF+,SBM+]
142	Several		0		
143	Few or none, or AA never has any surface water at that time		1		
144	F27	Islands	Select all that apply:	W	island = terrestrial or wetland area larger than 400 sq.ft, and smaller than 1 sq. mi, and separated from "mainland" by water deeper than 3 ft over a distance of >50 ft during early summer. [AM+,WBF+,WBN+]
145	During early summer the wetland contains a floating vegetation mat suitable for nesting birds and isolated from the shore by water depths >3 ft. Or AA is an island with similar isolation and a gently-sloping water edge that is mostly vegetated.		0		
146	During early summer the wetland contains (or is) an island with a gently-sloping water edge, that is mostly bare and is isolated from the shore by water depths >3 ft.		0		
147	Neither of above		1		
148	F28	Shorebird Feeding Habitats	The maximum extent of mudflats or unwooded shortgrass areas within the AA during shorebird migration and wintering (generally August through through April (and for tidal AAs, during mean low tide) is usually:		These areas must have (a) no vegetation (bare/ fallow), or herbaceous cover comprised mainly of grasses shorter than 4 inches during some part of this period, and (b) soils are saturated or are covered with <1" of water during some part of this period, and (c) no detectable surrounding slope (e.g., not the bottom of an incised dry channel), and (d) no substantial areas of shrubs or trees. See photograph in Appendix A of manual.This addresses needs of most migratory sandpipers, plovers, stilts, avocets, curlews, and godwits. [WBF+]
149	none, or <100 sq. ft, and there are none that cover >10,000 sq. ft anywhere within 300 ft of the AA		1		
150	none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA		0		
151	100-1000 sq. ft. within AA		0		
152	1000 – 10,000 sq. ft. within AA		0		
153	>10,000 sq. ft within AA	0			
154	F29	Waves	Which of the following is most true:		Erosive wave conditions often occur where adjoining open water has a fetch (uninterrupted distance) of greater than approximately 1 mile in the direction of the strongest and most frequent wind. [SRv+, PD-, STR+]
155	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, and structures behind the AA are protected from wave erosion		0		
156	Wind or boats frequently generate waves of >1 ft near the AA, those waves are intercepted by the wetland, but there are no structures behind the wetland		0		
157	Neither wind nor boats frequently generate waves of >1 ft near the AA	1			
158	F30	Vectors for Waterborne Pests	Select all that apply:		[SRv+, FA-,FR-,AM-,PD-,STR+]
159	a regularly-used boat dock is present within or contiguous to the AA		0		
160	a regularly-used boat dock is not within the AA, but there is one within 300 ft of the AA and there is a persistent or tidal surface connection between the dock and the AA		0		
161	large ships that empty ballast water are regularly present in nearby contiguous waters		0		
162	the AA has a persistent or tidal surface water connection (>9 mos./yr, via ditch, pipe, channel, tidegate, or floodplain) to a nearby perennial stream, river, lake, or estuary		0		
163	none of the above	1			

	A	B	C	D	E
164	F31	Non-native Aquatic Animals	The following are known or likely to have reproducing populations in this AA, its wetland, or in water bodies within 300 ft that connect to the AA at least seasonally. Select all that apply:		Assume non-native fish to be present if wetland is associated with a nearby reservoir, fish pond, or perennial stream flowing through an agricultural or residential area. Assume bullfrog, nutria, and/or carp to be present if (a) the AA contains persistent water or is flooded seasonally by an adjoining body of permanent water, and (b) not a forested wetland, and (c) in western Oregon, elevation is lower than about 3000 ft. In the ORWAP_SupplInfo file, see Inverts_Exo worksheet for more complete list of non-native invertebrates or Oregon, and WetVerts worksheet for more complete list of fish that are not native to Oregon. You may also consult: http://nas.er.usgs.gov/queries/default.aspx http://www.dfw.state.or.us/conservationstrategy/invasive_species.asp [INV-,FA-,FR-,AM-,CQ-]
165	non-native amphibians (e.g., bullfrog) or reptiles (e.g., red-ear slider)		0		
166	carp		0		
167	other non-native fish (e.g., bass, gambusia, walleye, crappie, brook trout)		0		
168	non-native invertebrates (e.g., New Zealand mudsnail, mitten crab, rusty crayfish)		0		
169	nutria		0		
170	none of above, or unknown	1			
171	For F32 to 34, if the statement is true, enter a "1" in column D. Otherwise that should be a "0"				
172	F32	Ice-free	During most years, most of the AA's surface water does not freeze, or freezes for fewer than 4 continuous weeks, or surface water is absent most winters.	0	[WS+,PR+,NR+,CS+,OE+,FR+,WBF+,Sens-]
173	F33	Ponded Threshold	During most of the summer, the AA contains more than 0.25 acre of ponded non-tidal surface water that is deeper than 1 ft, or is within 300 ft of such an area and the intervening habitat is not developed (roads, etc.). Or nesting within the AA by ducks, geese, or swans has been proven.	0	[WBN+]
174					
175	F34	No Scum	During most summers, less than 80% of the AA's water surface is covered by floating algae, duckweed, and other non-rooted aquatic plants, AND no major fish kills occur. If no surface water is present in summer, mark "1" in column D.	1	If wetland can be visited only during winter, it may not be possible to answer this question with much certainty unless local sources are contacted or indicators (e.g., dried remains of algae) are found. [PR+,FA+,PD+,CQ+]
176	F35	Submerged & Floating-leaved Aquatic Vegetation (SAV)	SAV (submerged & floating-leaved aquatic vegetation) occupies an annual maximum of:		SAV = herbaceous plants that characteristically grow at or below the water surface, i.e., whose leaves are primarily and characteristically under or on the water surface during most of the part of the growing season when surface water is present. Some species are rooted in the sediment whereas others are not. If pond lily (<i>Nuphar</i>) is the predominant species, consider its maximum extent only during the period when surface water is present beneath the leaves. For tidal sites, consider the condition during mean high tide. [INV+,FA+,FR+,AM+,WBF+,PDc,CQc,SENSc]
177			>95% of the surface water area	0	
178			50-95% of the surface water area	0	
179			25-50% of the surface water area	0	
180			5-25% of the surface water area	0	
181	<5% of the surface water area. Mark "1" here and SKIP TO F39 (Herbaceous Extent).	1			
182	F36	SAV Invasive vs. Non-invasive Cover	The areal cover of SAV at mid-summer is comprised of:		Invasive SAV species include: <i>Egeria densa</i> (Brazilian elodea), <i>Hydrilla verticillata</i> , <i>Myriophyllum aquaticum</i> (parrotfeather watermilfoil), <i>Cabomba caroliniana</i> (fanwort), <i>Nymphaea odorata</i> (white pondlily). For known distributions of these in your county, see: http://www.weedmapper.org/maps.html [PD-,CQ-,Sens-]
183			mostly invasive SAV species (see list in column E). Mark "1" here and underline the species in column E. Then SKIP to F39.	0	
184			mostly non-invasive species	1	
185	impossible to tell	0			
186	F37	SAV Native Species Dominance	Considering just the SAV species that are native:		[PD-, CQ-, Sens-]
187			one or two of those species together comprise >50% of the SAV cover. Mark "1" here and write names of dominant species in column E.	1	
188			no two of the native SAV species together comprise >50% of the SAV cover	0	
189			impossible to tell	0	

	A	B	C	D	E
190	F38	SAV Species Ubiquity	Of all the SAV species in this AA:		[PD-, CQ-, Sens-]
191			all are species that are common among Oregon's wetlands and lakes.	1	
192			at least one native species is a SAV plant that is not common among Oregon's wetlands and lakes, and it covers >1% of the SAV area or >100 sq. ft. See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	
193			impossible to tell	0	
194	Note: In the next 4 questions, "herbaceous" does not include SAV or herbaceous plants growing under a woody canopy, unless that canopy covers >80% of the vegetated part of the AA. If the AA is farmed, estimate herbaceous cover (including crops) as it would exist under maximum cover conditions during the majority of the last 5 years.				
195	F39	Herbaceous Extent	The areal cover of herbaceous plants during mid-summer is:		herbaceous = forbs, graminoids, ferns, liverworts, moss. Can include crops. Do not include submersed and floating-leaved aquatics (SAV) in the category of "herbaceous", or when defining the "vegetated part" of the site. Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated in the field. [POLc,INV+,WBF+,WBN+,Pdc, CQc,SENSc]
196			>95% of the vegetated part of the AA	0	
197			50-95% of the vegetated part of the AA	0	
198			25-50% of the vegetated part of the AA	0	
199			5-25% of the vegetated part of the AA	1	
200			<5% of the vegetated part of the AA. Mark "1" here and SKIP TO F44 (Woody Extent).	0	
201	F40	Graminoid vs. Forb Cover	When the areal cover of herbaceous plants is at an annual maximum, those plants are:		graminoids= grasses, sedges, rushes, reeds, burreed, cat-tail, and other grasslike plants . Remember to focus only on plants not beneath a woody canopy, unless that canopy occupies >80% of the AA. If possible this should be assessed during mid-summer. [POLL-]
202			overwhelmingly graminoids (>80% cover of grasslike plants)	0	
203			mostly graminoids (50-80% cover)	1	
204			mostly non-graminoids (e.g., forbs, ferns) (50-80%)	0	
205			overwhelmingly (>80%) non-graminoids	0	
206	F41	Herbaceous Native vs. Non-native Cover	The maximum annual areal cover of herbaceous plants is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. For known distributions of invasive plants in your county, see: http://www.weedmapper.org/maps.html Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
207			overwhelmingly (>80% cover) non-native species, of which >10% are species considered invasive (see column E). Mark "1" in next column and write names of dominant invasive species in column E. Then SKIP to F43.	0	
208			overwhelmingly (>80% cover) non-native species, but <10% are considered invasive (see column E). Mark "1" in next column and write names of dominant non-native species in column E. Then SKIP to F43.	1	
209			mostly (50-80%) non-native species, regardless of invasiveness. Mark "1" and SKIP to F43.	0	
210			mostly (50-80%) native species	0	
211			overwhelmingly (>80%) native species	0	
212	F42	Herbaceous Species Dominance	Of just the herbaceous (forb and graminoid) species that are native:		Remember to focus only on plants not beneath a woody canopy. [POL-,PD-,CQ-,Sens-]
213			one or two native species together comprise >50% of the areal cover of native herbaceous plants at any time during the year. Mark "1" in next column and write names of dominant native species in column E.	1	
214			no two of the native species together comprise >50% of the areal cover of native herbaceous plants	0	
215	F43	Herbaceous Plant Species Ubiquity	Of all the herbaceous species in this AA:		This question and several others (F37, 38, 42, 48, 49) are used as "placeholders" until a Floristic Quality Assessment index can be developed for Oregon. Much information on distribution and frequencies of plant species is available from the Oregon Flora Project: www.oregonflora.org/ [POL-,PD-,CQ-,Sens-]
216			all are species that are common among Oregon's wetlands.	1	
217			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA's herbaceous area or >100 sq. ft (either contiguous or scattered). See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write names of the species in column E.	0	

	A	B	C	D	E
218	F44	Woody Extent Within the AA	Within the AA, woody vegetation (shrubs, trees, woody vines) occupies:		<i>Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.</i> Vines are twining or climbing plants with relatively long stems, and can be either woody or herbaceous. Include Himalayan blackberry. [CS+,POLc,SBM+,PDc,CQc,SENSc]
219			>95% of the vegetated part of the AA	0	
220			50-95% of the vegetated AA	1	
221			25-50% of the vegetated AA	0	
222			5-25% of the vegetated AA	0	
223			<5% of the vegetated AA	0	
224	F45	Woody Extent Along Water Edge	Where surface water is present during the wettest time of year, the AA's woody vegetation occupies:		[SBM+]
225			>95% of the area within 100 ft of the surface water	0	
226			50-95% of the area within 100 ft of surface water	0	
227			25-50% of the area within 100 ft of surface water	0	
228			5-25% of the area within 100 ft of surface water	0	
229			<5% of the area within 100 ft of surface water; mark "1" here. If F44 is also <5%, then SKIP TO F50 (Woody Diameter Classes).	1	
230	F46	Woody Distribution	The woody vegetation (if any) within the AA is:		"contiguous to" means separated by less than one tree height. The separation may be caused by herbaceous vegetation, persistent water, roads, buildings, or bare soil, but not shrubs. [SBM+, CQ+, Sens+]
231			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches or bands are large (>1 acre including contiguous upland woody veg). Or nearly the entire AA is wooded. Isolated shrubs or trees are few.	1	
232			clumped in fairly distinct bands or patches mostly separate from herbaceous vegetation, and most patches are small (<1 acre including contiguous upland woody veg).	0	
233			dispersed quite evenly amid the herbaceous vegetation, in many small patches, or many isolated shrubs or trees.	0	
234	F47	Cover of Woody Invasives	Within parts of the AA having shrubs or woody vines, the areal cover is:		In the file ORWAP_SupplInfo, see P_Invas worksheet for list of invasives and P_Exo for non-native species list. Woody invasives include: Hedera helix, Ailanthus altissima, Buddleja spp., Cytisus spp., Rubus armeniacus (discolor), Rubus laciniatus, Tamarix spp., Umbellularia californica, Robinia pseudoacacia. For known distribution of some invasives in your county see: http://www.weedmapper.org/maps.html [POL-,PD-,CQ-,Sens-]
235			overwhelmingly (>80%) non-natives that are categorized as invasive (see column E). Mark "1" in next column and write names of dominant invasives in column E. Then SKIP to F49.	0	
236			overwhelmingly other non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
237			mostly (50-80%) non-natives. Mark "1" in next column and write names of dominant non-native shrubs/ vines in column E. Then SKIP to F49.	0	
238			mostly (50-80%) natives	0	
239			overwhelmingly (>80%) natives	1	
240	F48	Shrub & Vine Species Dominance	Of just the shrub & woody vine species that are native:		[POL-,PD-,CQ-,Sens-]
241			one or two of the native species together comprise >80% of the native shrub & vine cover. Mark "1" in next column and write names of dominant species in column E.	0	
242			no two of the native species together comprise >80% of the native shrub & vine cover	1	
243	F49	Shrub & Vine Species Ubiquity	Of all the shrub & woody vine species in this AA:		[POL-,PD-,CQ-,Sens-]
244			all are species that are common among Oregon's wetlands.	1	
245			at least one native species is not common among Oregon's wetlands and it covers >1% of the AA or >100 sq. ft See file ORWAP_SupplInfo, worksheet P_UnCom. Mark "1" in next column and write species in column E.	0	

	A	B	C	D	E
246	F50	Woody Diameter Classes	Select all the types occupying >5% of the wooded part of the AA or >5% of its wooded upland edge if any.		wooded upland edge= where woody plants are located within one tree-height of the wetland-upland boundary. Measurements are the d.b.h., which is the tree diameter at 4.5 ft above the ground. If visited only in winter, consider "dead standing trees" to be those that are mainly without bark. Include woody vines such as Himalayan blackberry. [CS+,POL+,INV+,AM+,WBN+,SBM+,Sens+]
247			deciduous 1-4" diameter and >3 ft tall	1	
248			evergreen 1-4" diameter and >3 ft tall	0	
249			deciduous 4-9" diameter	1	
250			evergreen 4-9" diameter	0	
251			dead standing 4-9" diameter	0	
252			deciduous 9-21" diameter	0	
253			evergreen 9-21" diameter	0	
254			dead standing 9-21" diameter	0	
255			deciduous >21" diameter	0	
256			evergreen >21" diameter	0	
257			dead standing >21" diameter	0	
258			Lacks woody vegetation, or none of above occupy >5% of the wooded part of the AA or 5% of the length of the upland edge.	0	
259	F51	N Fixers	Within the vegetated part of the AA, the cover of nitrogen-fixing plants (e.g., alder, sweetgale, legumes) is:		For a more complete list see file ORWAP_SupplInfo, worksheet NFIX. Do not include algae.
260			<1% or none	1	
261			1-25%	0	
262			25-50%	0	
263			50-75%	0	
264			>75%	0	
265	F52	Waterfowl Food Plants	The percent of the vegetated part of the AA, excluding areas that are never inundated, which contains one or more of these plants: Alisma spp., Beckmannia spp., Polygonum spp. (natives only), Potamogeton (Stuckenia) spp., Ruppia spp., Sagittaria spp., Sparganium spp., Zostera spp., is:		[WBF+,WBN+]
266			<1% or none, and none are known to occur commonly within the same wetland or within 300 ft of this AA	1	
267			<1% or none, but some are known to occur commonly within the same wetland or within 300 ft of this AA	0	
268			1-10%	0	
269			10-50%	0	
270			>50%	0	
271	F53	History of Fire or Vegetation Removal	The last time that >5% of the AA's vegetation cover was burned or harvested for hay or timber was:		[PR-,NR-,CS-,OE+,POL-,WBF+,PD+]
272			0-12 months ago, and this occurs almost annually within part of the AA	0	
273			0-12 months ago, but was not an annual (or near-annual) event	0	
274			1-5 years ago	0	
275			>5 years ago, or never	1	
276			unknown	0	
277	F54	Height Uniformity of Dominant Stratum	Within the stratum (herbaceous, shrub, or tree) that covers the most onsite area, the wetland plants during maximum annual cover condition are mostly:		e.g., If dominantly herbaceous, then "diverse heights" might include both short and tall forbs, some non-woody vines, and mid-height graminoids. See photograph of a vertically diverse herbaceous stratum in Appendix A of manual. [POL+,INV+,WBN+,SBM+, PD+]
278			of nearly uniform height (+ or - 20% of average)	0	
279			of very diverse heights (e.g., short & tall forbs, short & mid-height grasses)	1	

	A	B	C	D	E
280	F55	Bare Ground & Accumulated Plant Litter	Consider the parts of the AA that usually are not inundated in May, or are inundated by tides at least once annually. Viewed from 6 inches above the soil surface, the condition in most of this area during May is:		Estimates of "plant litter" cover should include only the litter and woody debris that would be visible from a height of 6 inches above the soil surface. Emphasis should be on plant litter that has remained from prior years ("thatch"), not recent. Erect plant stems should not be counted as plant litter, even if dead. "Bare ground" that is present under a tree or shrub canopy should be counted. It includes unvegetated soil, rock, sand, or mud between stems if any. See photographs in Appendix A of manual for examples. Wetlands that are dominated by annual plant species tend to have more extensive areas that are bare or covered only by plant litter, during minimum annual cover conditions. [SR-,PR-,NR-,CS-,OE-,POL-,INV-,AM-,SBM-,Sens+]
281	little or no (<5%) bare ground or plant litter (thatch) is visible between erect stems or under canopy. This can occur if ground surface is extensively blanketed by moss, graminoids with great stem densities, or plants with ground-hugging foliage.		0		
282	some (5-20%) bare ground or litter is visible. Herbaceous plants have moderate stem densities and do not closely hug the ground.		1		
283	much (20-50%) bare ground or plant litter is visible. Low stem density and/or tall plants with little near-ground foliage. May be mostly woody plants, woody vines, cattail, bulrush, sparse annuals.		0		
284	mostly (>50%) bare ground or accumulated plant litter. Or, during May the entire AA is constantly under water.		0		
285	F56	Upland Edge Shape Complexity	Most of the edge between the wetland and upland is (select one):	W	See illustrations in Appendix A of the ORWAP manual . [NR+,SBM+]
286	<i>Linear</i> : a significant proportion of the wetland's upland edge is straight, as in wetlands bounded by partly or wholly by dikes or roads		0		
287	<i>Convolved</i> : Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")		0		
288	<i>Intermediate</i> : Wetland's perimeter either (a) is only mildly convoluted, or (b) mixed -- contains about lengths of linear and convoluted segments.		1		
289	F57	Upland Inclusions	The extent of inclusions of upland within the AA (as indicated by their topography, plants, and/or soils) is:		[NR+,AM+,SBM+]
290	Many (e.g., wetland-upland "mosaic")		0		
291	Few or none		1		
292	F58	Soil Composition in the Soil Pit	The composition of the soil in the soil pit at the ground surface (uppermost soil layer and excluding the duff layer, see protocol in ORWAP Manual, section 2.3.2) is:		duff layer= leaves, woody material, and live or dead roots, moss that has undergone partial decomposition. [PR,NR,CS,OE, PD, Sen]
293	<i>Loamy</i> : includes silt, silt loam, loam, sandy loam		1		
294	<i>Clayey</i> : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam		0		
295	<i>Organic</i> : includes muck, mucky peat, peat, and mucky mineral		0		
296	<i>Coarse</i> : includes sand, loamy sand, gravel, cobble, stones, boulders, fluvents, fluvaquents, riverwash		0		
297	F59	Downed Wood	The number of downed wood pieces longer than 6 ft and with diameter >6", and not persistently submerged, is:		include driftwood. [POL+,INV+,AM+,SBM+]
298	Several (>5 if AA is >10 acres, or >2 for smaller AAs)		0		
299	Few or none		1		
300	F60	Ground Irregularity	The number of animal burrows, mounds, hummocks, boulders, upturned trees, islands, natural levees, dry channels, pits, wide soil cracks, and microdepressions (in parts of the AA that lack persistent water) is:		"microtopography" refers mainly to vertical relief of <1 m and is represented only by inorganic features, except where plants have created depressions or mounds of soil. See photographs in Appendix A of manual for examples. [WS+,SR+,PR+,NR+,CS+,POL+,INV+,AM+,SBM+,PD+]
301	Several (extensive micro-topography)		1		
302	Few or none (minimal microtopography; <1% of the area that isn't persistently inundated); e.g., many flat sites having a single hydroperiod		0		
303	Intermediate		0		

	A	B	C	D	E
304	F61	Internal Gradient	The gradient along most of the AA's water flow paths (both sheet and channel flow) is:		Except in isolated wetlands (no outlets), this is not the same as the shoreline slope. It is the elevational difference between highest and lowest points within the site, divided by the flow-distance between them and converted to percent. If most of the surface water is impounded within the site, the gradient is the gradient of the water surface, not the gradient of the submerged substrate. See diagram in Appendix A. If available, use a clinometer to measure this. [WS-,SR-,PR-,NR-,CS-,OE+,AM-,WBF-,WBN-]
305	>10%		0		
306	6-10%		0		
307	2-5%		1		
308	Flat (<2%, no slope or flow is ever apparent, or AA is an estuarine fringe wetland). Includes most depressional sites		0		
309	F62	Fish Access From Offsite	Small fish (e.g., stickleback, minnow) from elsewhere in the watershed can access part of this AA for at least 2 days during most years or are known to already be present onsite.	1	Although incomplete, the species maps may be helpful at: http://map.streamnet.org/ or http://query.streamnet.org/ [INV-,FA+,FR+,AM-,WBF+]
310	F63	Nesting or Roosting Structures	Within the AA or within its wetland or within 300 ft of AA, there are bridges, buildings, caves, or ledges with openings/ crevices, well-maintained bird or bat boxes, elevated platforms, or other artificial structures suitable for nesting by some native bird or bat species.	0	e.g., open buildings for barn swallows, bridges for cliff swallows, wood duck boxes, goose nesting platforms, sheltered places for bees and wasps [POL+,SBM+]
311	F64	Cliffs, Banks, or Beaver	In the AA or within its wetland or within 100 ft of the AA, there are elevated terrestrial features such as cliffs, stream banks, excavated pits, or pumice walls (but not riprap) that extend at least 6 ft nearly vertically, are unvegetated, and potentially contain crevices or other substrate suitable for nesting or den areas. Or there is evidence that beaver have used this AA (e.g., gnawed limbs).	1	[POL+,SBM+]
312	F65	Visibility	The maximum percent of the wetland that is visible from the best vantage point on public roads, public parking lots, public buildings, or public paved paths that adjoin or are within 300 ft of the AA (select one) is:		[PU+]
313	>50%		1		
314	25-50%		0		
315	<25%		0		
316	F66	Ownership	Most of the AA is (select one):		[PU+]
317	in public ownership		1		
318	in private ownership		0		
319	F67	Public Access	For most of the AA, permission for access is normally given or allowed:		In all cases, this question assumes that permission for access may be limited to certain activities. [PU+]
320	to anyone, mostly unrestricted		1		
321	to anyone, but significant restrictions (e.g., limited dates, permit required)		0		
322	only on a case-by-case basis, but with few other restrictions		0		
323	only on a case-by-case basis, with restrictions (e.g., limited dates, permit required)		0		
324	seldom or never		0		
325	(do not know)	0			
326	F68	Non-consumptive Uses - Actual or Potential	Assuming access permission was granted, select all statements that are true of this AA as it currently exists:		[PU+]
327	Walking is physically possible in >5% of the AA during most of year, e.g., free of deep water and dense shrub thickets		1		
328	All or part of the AA (or an area within sight of the AA and within 100 ft) would be physically accessible to people in wheelchairs, e.g., paved and flat		0		
329	Maintained roads, parking areas, or foot-trails are within 30 ft of the AA, or the AA can be accessed most of the year by boat		1		
330	F69	Sustained Scientific Use	Plants, animals, or water in the AA have been monitored for >2 years, unrelated to any regulatory requirements, and data are available to the public. Or the AA is part of an area that has been designated by an agency or institution as a benchmark, reference, or status-trends monitoring area.	0	[PU+]
331	(do not know)		0		

	A	B	C	D	E
332	F70	Consumptive Uses (Provisioning Services)	Recent evidence was found within the AA of the following potentially-sustainable consumptive uses. Select all that apply.		"Low impact" means adherence to Best Management Practices such as those defined by NRCS and other agencies. Evidence may consist of direct observation, or presence of physical evidence (e.g., recently cut stumps, fishing lures, shell cases), or communication with the land owner or manager. [PS+]
333	low-impact commercial timber harvest		0		
334	low-impact grazing		1		
335	commercial harvesting of hay or mushrooms		0		
336	waterfowl hunting or furbearer trapping		0		
337	fishing (including shellfish harvest)		0		
338	None of the above		0		
339	F71	Domestic Wells	Wells that currently provide drinking water are:		If unknown, assume this is true if there is an inhabited structure within the specified distance and the neighborhood is known to not be connected to a municipal drinking water system (e.g., is outside an Urban Growth Boundary), or if crops are irrigated annually and the site is distant from a major water body. [NRv+]
340	Within 500 ft and downslope from the AA or at same elevation		0		
341	500-1000 ft and downslope or at same elevation		0		
342	>1000 ft downslope, or none downslope, or AA is tidal, or no information		1		
343	F72	Sediment Removal	Excessive accumulation of sediment has caused frequent problems for large boats, with shoaling necessitating frequent dredging, in waters that are located:		[SRv+]
344	contiguous to the AA, or <1 mile downslope from the AA		0		
345	1-5 miles downslope		0		
346	>5 miles downslope, or no shoaling, or no boats, or no information		1		
347	F73	Devegetation	The percent of the AA's vegetation cover that normally grows taller than 4 inches but which has been persistently reduced to less than that height by mowing (many times per year), plowing, and/or grazing by domestic or wild animals is:		[OE-,INV-,AM-,WBN-,SBM-,PD-,CQ-]
348	>95%		0		
349	50-90%		0		
350	5-50%		1		
351	<5%, or grazing/ mowing does not cause the described condition		0		
352	F74	Core Area 1	The part of the AA almost never visited by humans during an average year probably comprises:		Judge this based on proximity to population centers, roads, trails, accessibility of the AA to the public, wetland size, usual water depth, and physical evidence of human visitation. Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM+,WBF+,WBN+,SBM+,PD+,STR-]
353	>95% of the AA		0		
354	50-95%		0		
355	5-50% and inhabited building is within 300 ft of the AA, or <5% and no inhabited building is within 300 ft of the AA		0		
356	none of the above		1		
357	F75	Core Area 2	The part of the AA visited by humans almost daily for several weeks during an average year probably comprises:		Exclude visits that are not likely to continue and/or that are not an annual occurrence, e.g., by construction or monitoring crews. See diagram in Appendix A of the manual. [AM-,WBF-,WBN-,SBM-,PD-,STR+]
358	>95% of the AA		0		
359	50-95%		0		
360	5-50%		0		
361	<5%		1		
362	F76	Weed Source Along Upland Edge	Along the AA's boundary with upland, the percent of the upland edge (within 10 ft of AA) that is occupied by species that are marked as invasive in the Plants worksheet is:		Some of the most common invaders along upland edges of Oregon wetlands are Himalayan blackberry, knotweed, sweetbrier rose, Russian olive, English ivy, nightshade, pepperweed, medusahead, white clover, ryegrass, quackgrass, false brome, bentgrass, dandelion, oxeye daisy, pennyroyal, bull and creeping thistles, tansy ragwort, poison hemlock, and teasel. See file ORWAP_SupplInfo, worksheet P_Invas. If a plant cannot be identified to species (e.g., winter conditions) but its genus contains an invasive species, assume the unidentified plant to also be invasive. If vegetation is so senesced that apparently dominant edge species cannot be identified even to genus, answer "none". [PD-,STR+]
363	most (>50%) of the upland edge		1		
364	much (5-50%) of the upland edge		0		
365	some (1-5%) of the upland edge		0		
366	none of the upland edge (invasives apparently absent), or AA is not within 10 ft of upland		0		

	A	B	C	D	E
367	F77	Natural Land Cover in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the percent of the upland that contains <i>natural</i> (not necessarily native) land cover is:		Natural land cover includes wooded areas, sagebrush, vegetated wetlands, prairies, as well as relatively unmanaged commercial lands such as hayfields, lightly grazed pastures, and most rangeland. It does not include water, row crops (vegetable, orchards, Christmas tree farms), residential areas, lawn, pavement, bare soil, gravel or dirt roads. Natural land cover is not the same as native vegetation or undisturbed soil. It frequently includes a dominance of non-native plants (e.g., ryegrass, Himalayan blackberry). If the entire site is an island without an upland edge, select the last choice. [POL+,INV+,FA+,FR+,AM+,WBN+,SBM+,PD+,Sens-]
368			>90%, or there is no upland boundary	1	
369			60 to 90%	0	
370			30 to 60%	0	
371			5 to 30%	0	
372			<5%	0	
373	F78	Type of Land Cover Alteration in Buffer	Within 100 ft upslope of the AA's wetland-upland boundary, the upland land cover that is not natural (as defined above) is mostly:		[INV-,FA-,AM-,WBN-,SBM-,PD-,STR+]
374			impervious surface, e.g., paved road, parking lot, building, exposed rock	0	
375			bare pervious surface, e.g., dirt road, dike, dunes, recent clearcut, landslide	1	
376			cultivated row crops or orchard	0	
377			artificially landscaped areas or lawn	0	
378			grain fields, or grassland grazed or mowed to a height usually shorter than 4 inches	0	
379			other	0	
380			(buffer is >90% natural land cover or AA occupies all of an island)	0	
381	F79	Buffer Slope	Along the AA's wetland-upland boundary and extending 100 ft uphill, the slope of the land is mostly:		See diagram in Appendix A of the manual. If the described area contains a disturbance feature, estimate instead the slope between the wetland-upland boundary and the most extensive such feature. Disturbance feature = building, paved area, recently cleared area, dirt road, lawn, intensely grazed pasture, orchard, vineyard, annually-harvested row crops [Sens+]
382			<1% (flat -- almost no noticeable slope, or there is no upland boundary)	0	
383			2-5%	0	
384			5-30%	1	
385			>30%	0	
386	F80	Edge Slope	Within 10 ft of ponded surface water (if any) in early summer, the percent of the herbaceous area (wetland or upland) that has a gentle or moderate slope (less than 5% slope) is:		See diagram in Appendix A of the manual. If several isolated pools are present in early summer, estimate the percent of their collective shorelines that has such a gentle slope. [AM-,WBN-]
387			>75%	0	
388			50-75%	0	
389			25-50%	0	
390			1-25%	0	
391			<1%,	0	
392			(ponded surface water in early summer covers <1% of AA, or AA is tidal, or no herbaceous vegetation is present near ponded water)	1	
393	F81	Independently Sustainable Hydrology	How likely is it that any or all of this AA will persist as a wetland (not necessarily of the same type) if an existing dike or berm, water control structure (e.g., dam, weir), or pumping/ diversion system that now helps sustain it -- and is within 1 mile of the AA -- was removed or became inoperable?		If all such human activities and structures disappeared, would the site still be a wetland? [WSv,SRv,PRv,NRv,INVv,AMv,WBFv,WBNv,SBMv,PDv+]
394			Very likely, or no such feature is present (greater sustainability potential)	1	
395			Somewhat likely -- part but not all of the AA would remain a wetland	0	
396			Unlikely or not at all (lower sustainability potential)	0	

Site Name: MAWLLCK-370	Investigator: John Gordon; Thad Jones	Date: 10/24/2012
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Field S data form. ORWAP version 2.0.2 May 2012

S1 Wetter Water Regime - Internal Causes

In the last column, place an X next to any item that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. (The items you check are not used automatically by ORWAP. They are included simply so they may be considered when evaluating the factors in the table beneath them).

an impounding dam, dike, levee, weir, berm, road fill, or tidegate -- within or downgradient from the AA, or raising of outlet culvert elevation.	
excavation within the AA, e.g., artificial pond, dead-end ditch	
excavation or reflooding of upland soils that adjoined the AA, thus expanding the area of the AA	
plugging of ditches or drain tile that otherwise would drain the AA (as part of intentional restoration, or due to lack of maintenance, sedimentation, etc.)	
vegetation removal (e.g., logging) within the AA	
compaction (e.g., ruts) and/or subsidence of the AA's substrate as a result of machinery, livestock, or off road vehicles	
changes not related directly to humans, e.g., beaver	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime that still persists in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present. The sum and final score will compute automatically.

	Severe (3 points)	Medium (2 points)	Mild (1 point)	Pts	
Spatial extent of resulting wetter condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	0	
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0	
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>					
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0	
Average water level increase	>1 ft	6-12"	<6 inches	0	
* Score these 2 rows only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	0	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	0

S2 Wetter Water Regime - External Causes

In the last column, place an X next to any item occurring in the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated more extensively, more frequently, more deeply, and/or for longer duration than it would be without that item or activity. Remember that if the AA is flooded as little as once every 2 years by river flow, the CA includes all upstream areas of that river.

subsidies from stormwater, wastewater effluent, septic system leakage, or irrigation water (direct or via seepage)	
pavement, ditches, or drain tile in the CA that incidentally increase the transport of water into the AA	
removal of timber or phreatophytes in the CA or along the AA's tributaries	x
removal of a water control structure or blockage in tributary upstream from the AA	
changes in the CA that are not related directly to humans, e.g., channel migration, landslides, forest die-offs, seismic activity	

If any items were checked above, then for each row of the table below, assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a wetter water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	Pts	
Spatial extent of resulting wetter condition	>20% of the AA	5-20% of the AA	<5% of the AA	1	
When most of AA's wetter condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1	
<i>Score the following 2 rows only if the wetter conditions began within past 10 years, and only for the part of the AA that got wetter.</i>					
Inundation now vs. previously	persistent vs. seldom	persistent vs. seasonal	slightly longer or more often	0	
Average water level increase	>1 ft	6-12"	<6 inches	0	
* Score this row only for the part of the AA that got wetter, and only if the wetter conditions began within past 10 yrs			sum=	2	
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score=	1

S3 Drier Water Regime - Internal Causes				
In the last column, place an X next to any item located within or immediately adjacent to the AA, that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without that item.				
ditches or drain tile in the AA or along its edge that accelerate outflow from the AA				
lowering or enlargement of a surface water exit point (e.g., culvert) or modification of a water level control structure, resulting in quicker drainage				
accelerated downcutting or channelization of an adjacent or internal channel (cut below the historical water table level)				
deep ripping (e.g., with plows) that severs an underlying hydrologically-confining soil layer				
placement of fill material				
withdrawals (e.g., pumping) of natural surface or ground water directly out of the AA (not its tributaries)				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pt)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	1
When most of AA's drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	1
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	6-12"	<6 inches	0
			sum=	2
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	1
S4 Drier Water Regime - External Causes				
In the last column, place an X next to any item within the CA (including channels flowing into the AA) that is likely to have caused a part of the AA to be inundated less extensively, less deeply, less frequently, and/or for shorter duration that it would be without those.				
a dam, dike, levee, weir, berm, or tidegate that interferes with natural inflow to the AA				
relocation of natural tributaries whose water would otherwise reach the AA				
instream water withdrawals from tributaries whose water would otherwise reach the AA				
groundwater withdrawals that divert water that would otherwise reach the AA				
proliferation of phreatophytes (woody plants with deep roots and high transpiration, e.g., juniper, autumn olive) or crops with high transpiration rates that are near the AA				
changes not related directly to humans				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in creating a drier water regime in the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of AA's resulting drier condition	>20% of the AA	5-20% of the AA	<5% of the AA	0
When most of AA;s drier condition began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
<i>Score the following 2 rows only if the drier conditions began within past 10 years, and only for the part of the AA that got drier.</i>				
Inundation now vs. previously	seldom vs. persistent	seasonal vs. persistent	slightly shorter or less often	0
Water level decrease	>1 ft	1-12"	<1 inch	0
			sum=	0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	0

S5	Altered Timing of Water Inputs				
	In the last column, place an X next to any item that is likely to have caused the timing of water inputs (but not necessarily their volume) to shift by hours, days, or weeks, becoming either more muted (smaller or less frequent peaks spread over longer times, more temporal homogeneity of flow or water levels) or more flashy (larger or more frequent spikes but over shorter times).				
	flow regulation in tributaries or water level regulation in adjoining water body, or tidegate or other control structure at water entry points that regulates inflow to the AA				
	increased pavement and other impervious surface in the CA				
	straightening, ditching, dredging, and/or lining of tributary channels in the CA				
	discharges of irrigation water to the AA, applied at times when natural runoff typically is not significant				
	other				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the timing of water inputs to the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Spatial extent within the AA of timing shift	>95% of AA	5-95% of AA	<5% of AA	0
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	<i>Score the following 2 rows only if the altered inputs began within past 10 years, and only for the part of the AA that experiences those.</i>				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	0
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	0
					sum= 0
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.				final score= 0	
S6	Accelerated Inputs of Nutrients, Contaminants, and/or Salts				
	In the last column, place an X next to any item -- occurring in either the AA or its CA -- that is likely to have accelerated the inputs of nutrients, contaminants, or salts to the AA				
	stormwater or wastewater effluent (including failing septic systems), landfills				
	irrigation water discharges into the AA, including saline seeps				
	livestock, dogs				
	fertilizers applied to lawns, ag lands, or other areas in the CA				
	pesticides applied to lawns, ag lands, roadsides, or other areas in the CA, but excluding spot applications for controlling non-natives in the AA				
	dumping of large amounts of wood, leaves, grass clippings, trash into the AA or its tributaries				
	artificial drainage of upslope lands				
	reflooding of soils that had been dry for many years				
	fire retardants from aerial firefighting				
	oil or chemical spills (not just chronic inputs) from nearby roads				
	erosion of nutrient-rich or contaminated soils				
	chemical wastes from mining, oil/ gas extraction, other industrial sources				
	other human-related disturbances within the CA				
	sources not related directly to humans, e.g., fire, extensive cover of nitrogen-fixing plants (e.g., alder), concentrations of waterbirds or other wildlife				
	If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in generating loads of nutrients, contaminants, or salts reaching the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
		Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
	Usual toxicity of most toxic contaminants	industrial effluent or 303d* for toxics	domestic effluent, cropland, or 303d for nutrients	mildly impacting (livestock, pets, low density residential)	1
Frequency & duration of input	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	3	
AA proximity to main sources (actual or potential)	0-50 ft	50-300 ft or in groundwater	in other part of contributing area	3	
* categorized by ODEQ as Water Quality Limited (303d) and toxic substances are listed by ODEQ as one reason. See item D40 in data form OF.				sum= 7	
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3	

S7 Excessive Sediment Loading from Contributing Area				
In the last column, place an X next to any item present in the CA that is likely to have elevated the load of waterborne or windborne sediment reaching the AA from its CA.				
erosion from plowed fields, fill, timber harvest, dirt roads, vegetation clearing, fires				
erosion from construction, in-channel machinery in the CA				
erosion from off-road vehicles in the CA				
erosion from livestock or foot traffic in the CA				
stormwater or wastewater effluent				
sediment from gravel mining, other mining, oil/ gas extraction				
accelerated channel downcutting or headcutting of tributaries due to altered land use				
other human-related disturbances within the CA				
natural processes within the CA, e.g., streambank erosion, landslides, erosion of erosion-prone soils especially following fire, floods				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in increasing the amount or transport of sediment into the AA. To estimate that, contrast it with the condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Erosion in CA	extensive evidence, high intensity*	potentially (based on high-intensity* land use) or scattered evidence	potentially (based on low-intensity* land use) with little or no direct evidence	2
Recentness of significant soil disturbance in the CA	current & ongoing	1-12 months ago	>1 yr ago	1
Duration of sediment inputs to the AA	frequent and year-round	frequent but mostly seasonal	infrequent & during high runoff events mainly	1
AA proximity to actual or potential sources	0-50 ft, or farther but on steep erodible slopes	50-300 ft	in other part of contributing area	3
* high-intensity= plowing, grading, excavation, erosion with or without veg removal; low-intensity= veg removal only with little or no apparent erosion or disturbance of soil or sediment			sum=	7
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	3
S8 Soil or Sediment Alteration Within the Assessment Area				
In the last column, place an X next to any item present in the AA that is likely to have compacted, eroded, or otherwise altered the AA's soil				
compaction from machinery, off-road vehicles, or mountain bikes, especially during wetter periods				
leveling or other grading not to the natural contour				
tillage, plowing (but excluding disking for enhancement of native plants)				
fill or riprap, excluding small amounts of upland soils containing organic amendments (compost, etc.) or small amounts of topsoil imported from another wetland				
livestock and other sediment- or soil-disturbing animals, e.g., carp, nutria, wild boar, people on foot				
excavation				
dredging in or adjacent to the AA				
boat traffic in or adjacent to the AA and sufficient to cause shore erosion or stir bottom sediments				
artificial water level or flow manipulations sufficient to cause erosion or stir bottom sediments				
natural processes within the AA, e.g., trampling by concentrated wildlife, shore or streambank erosion, landslides, normal erosion of erosion-prone soils especially following fire, floods.				
If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items in altering the AA's soils. To estimate that, contrast it with the soil condition if checked items never occurred or were no longer present.				
	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of altered soil	>95% of AA or >95% of its upland edge (if any)	5-95% of AA or 5-95% of its upland edge (if any)	<5% of AA and <5% of its upland edge (if any)	2
Recentness of significant soil alteration in AA	current & ongoing	1-12 months ago	>1 yr ago	3
Duration	long-lasting, minimal veg recovery	long-lasting but mostly revegetated	short-term, revegetated, not intense	2
Timing of soil alteration	frequent and year-round	frequent but mostly seasonal	infrequent & mainly during scattered events	3
			sum=	10
0 if Sum= 0, (1 pt) if Sum= 1-4. (2 pt) if 5-6. (3 pt) if 7-8. (4 pt) if 9-10. (5 pt) if >10.			final score=	4

S9

Vegetated Cover Removal Within the Assessment Area

In the last column, place an X next to any item present in the AA that is likely to have caused less canopy or ground cover, or less vegetation biomass, or less wood generally. If only the species composition (not total cover or biomass) changed, do not check any of these items.

clearing, logging, excepting removal of woody vegetation from native prairies	
grazing by livestock	X
mowing	
herbicides, excepting spot applications for controlling non-native plants in the AA	
plowing, regrading	
removal of woody debris	
shading from large artificial structure, e.g., bridge, boardwalk, dock	
other human-related disturbances within the AA	
natural processes concentrated within the AA, e.g., wind & wave scouring, windthrow, insect or disease infestations, fires, beaver damage, natural erosion, intensive grazing by deer, elk, geese.	

If any items were checked above, then for each row of the table below assign points (3, 2, or 1) in the last column that describe the combined maximum effect of those items on the amount of vegetation cover in the AA.

	Severe (3 pts)	Medium (2 pts)	Mild (1 pt)	
Spatial extent of veg removal	>95% of AA or >95% of its water edge	5-95% of AA or 5-95% of its water edge	<5% of AA and <5% of its water edge if any	2
Frequency of significant veg removal	regularly during most of the year	a few times a year	annual or less	3
Biomass recovery after each removal	> 20 yrs	2-20 yrs	<2 yrs	1
sum=				6
0 if Sum= 0, (1 pt) if Sum= 1-3. (2 pt) if 4-5. (3 pt) if 6-7. (4 pt) if 8. (5 pt) if 9.				final score= 3

APPENDIX D
DRAFT FUNCTIONAL ASSESSMENT OF IMPACTED STREAMS



**Draft
Stream Functional Assessment
Methodology
Boardman to Hemingway Transmission
Line Project**

June 2017

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ATTACHMENTS

Attachment A: B2H Functional Assessment Datasheet

Attachment B: B2H Stream Functional Assessment Photographs

1.0 INTRODUCTION

Idaho Power Company (IPC) is proposing to construct and operate approximately 296.6 miles of new transmission line known as the Boardman to Hemingway Transmission Line Project (Project). The Project would include a 500-kilovolt (kV) single-circuit line, relocation of a portion of a 230-kV transmission line, relocation of a 138-kV transmission line, and a rebuild removal of a portion of an existing 138-kV and 69-kV double-circuit transmission lines between Boardman, Oregon, and the Hemingway Substation (located approximately 30 miles southwest of Boise, Idaho). The Project includes ground-disturbing activities associated with the construction of above-ground, single- and double circuit transmission lines involving towers, access roads, multi-use areas, light-duty fly yards, pulling and tensioning sites as well as associated stations, communication stations, and electrical supply distribution lines.

The Project area, or Site Boundary, as defined in Oregon Administrative Rule 345-001-0010(55) includes “the perimeter of the site of a proposed energy facility, its related or supporting facilities, all temporary laydown and staging areas, and all corridors and micro-siting corridors proposed by the applicant.” The Site Boundary for this Project includes the following facilities in Oregon:

- The Proposed Route, consisting of 270.8 miles of new 500-kilovolt (kV) electric transmission line, removal of 12 miles of existing 69-kV transmission line, relocation of 0.9 mile of a 230-kV transmission line, and relocation of 1.1 miles of an existing 138-kV transmission line;
- Four alternatives that each could replace a portion of the Proposed Route, including the West of Bombing Range Road Alternative 1 (3.7 miles), West of Bombing Range Road Alternative 2 (3.7 miles), Morgan Lake Alternative (18.5 miles), and Double Mountain Alternative (7.4 miles);
- One proposed 20-acre station (Longhorn Station);
- Ten communication station sites of less than ¼ acre each and two alternative communication station sites;
- Permanent access roads, including 206.3 miles of new roads and 283.4 miles of existing roads; and
- Thirty-one temporary multi-use areas and 299 pulling and tensioning sites of which four will have light-duty fly yards within the pulling and tensioning sites.

Construction of the Project will result in unavoidable impacts to waters of the state.

This document describes the approach and methodologies of the stream functional assessment that has been used on the Project. Stream functional assessments were conducted in 2013 to assist in determining Compensatory Non-Wetland Mitigation (CNWM) requirements. Based on the Project design at the time, 14 streams proposed for impact were selected for assessment in 2013. They were selected in each of the HUC 4 watersheds crossed by the Project, and were selected to be representative of the types of streams that would be impacted. These streams were submitted to Oregon Department of State Lands (ODSL) (Gordon 2013) for vetting, and confirmed as acceptable (Cary 2013a).

Since the Project design changed after the stream assessments were completed, the status of some of the streams relative to the Project has changed. One site is no longer within the site

boundary; six streams are still within the site boundary but not impacted; and one stream is proposed for minor impact. The status of each stream is indicated in Section 3.

1.1 Purpose

Rules regulating stream functional assessment are provided in Oregon Administrative Rule (OAR) 141-085-0765 (3): CNWM Functional Assessment (ODSL 2012a).

This OAR states that an assessment should provide a detailed rationale based upon direct measurement or observation of the indicators for the following functional categories:

- **Hydrologic functions:** includes the variable transfer and storage of water among the stream channel, its floodplain, and associated alluvial aquifer.
- **Geomorphic functions:** encompasses hydraulic and sediment transport processes that generate variable forces within the channel and the variable input, transfer and storage of sediment within the channel and adjacent environs that are generally responsible for channel form.
- **Biological functions:** includes processes that result in maintenance and change in biodiversity, trophic structure, habitat, and in some instances, variability in channel form.
- **Chemical and nutrient functions:** encompasses processes that govern the cycling, transfer, and regulation of nutrients and chemicals in surface and groundwater, and between the stream channel and associated riparian system.

2.0 FUNCTIONAL ASSESSMENT

Based on the Guidance for Assessing Stream Function and Values under the Oregon Removal Fill Program (ODSL 2012b), Table 1 uses the four functional categories discussed above to assess stream function and values. The table breaks these four categories down by stream functions, and displays functional attributes that represent specific features of a function. Functional attributes may indicate which particular function is active. In addition, functional attributes can represent multiple functions.

Table 1. Attributes and Functions

Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation
Hydrologic Functions (H)													
Surface Water Storage	X			X									
Sub/surface Transfer	X		X										
Flow variation	X	X	X	X		X		X					
Geomorphic Functions (G)													
Sediment Continuity	X	X		X		X							
Sediment Mobility	X			X	X	X	X	X					
Biological Functions (B)													
Maintain Biodiversity	X		X	X				X	X	X			
Create Habitat	X	X	X	X	X	X	X	X	X				X
Sustain Trophic structure	X			X		X		X	X	X	X		
Chemical and nutrient functions (C)													
Nutrient Cycling	X			X					X		X		
Chemical regulation	X			X				X	X		X		
Thermal regulation			X						X		X	X	

2.1 Methodology

2.1.1 Functional Attribute Assessment

Each function attribute displayed in Table 2 has been given a rating based on literature from the US Environmental Protection Agency's Draft Function Assessment Framework (USEPA 2012) and input from the Oregon Department of State Lands (Cary 2013b). Functional attributes were assessed at patch scale for the Project, since at each site the area affected by the Project will be smaller than a reach or a stream segment. A patch is defined as segment of stream with consistent character (USEPA 2012). Assessment of particular attributes were qualified by field observations and best professional judgment of the assessors.

Observations of stream characteristics and ratings of the functional attributes were recorded on a data form (Attachment A). The datasheet is organized by functional attributes, and stream characteristics that affect each attribute.

Table 2. Attribute Assessment Methods

Function Attribute	Overall Function	Assessment Methods
Overbank Flow	H, G, B, C	Field Biologists used indicators such as debris lines, water inundation marks, presence of algal mats, and vegetation patterns to determine whether overbank inundation is GOOD, FAIR, POOR.
Effective Discharge	H, G, B	Field biologists observed if there is PRESENCE or ABSENCE of physical alterations to the bed channel, such as channelization, leveeing, or changes to slope. If present these can lead to a loss or degradation of habitat. Based on presence a score of GOOD, FAIR, POOR was determined.
Base Flow	H, B, C	Field Biologists utilized the SDAM method to determine if the flow of a water feature is EPHEMERAL, INTERMITTENT, or PERENNIAL.
Bed Mobility	H, G, B, C	Field biologists observed if there are structures in the channel or channel incision that may be negatively impacting bed mobility due to dynamic processes of scour, transport, deposition and storage within the channel. Based on observations the result YES or NO if the channel or flow has been altered. Based on observations a score of GOOD, FAIR, POOR was determined.
Sediment Characteristics	G, B	Field biologists described bed material in terms of SILT, SAND, GRAVEL, COBBLE and BOULDER to determine variation of sediment characteristics and sorting of sediment among the bed and bar of an active channel. Based on variability of sediment a score of HIGH, MODERATE, LOW was determined.
Bank Stability	H, G, B	Field biologists assess banks based on erosion from cattle, sloughing, high flows and/or vegetation removal. Bank stability is characterized by YES and NO. Erosion is characterized by LIGHT, MODERATE or SEVERE.
Hydraulic Variability	G, B, C	Field biologists observed the presence of pools, runs, riffles, varying depths and velocities of flowing water. This was qualified by GOOD, FAIR or POOR by number of observed features.
Stream Habitat	H, G, B, C	Based on different variables from field observations and SDAM a rating of GOOD, FAIR or POOR was selected to assess if there is a habitat available for native aquatic organisms and life stages.

Function Attribute	Overall Function	Assessment Methods
Riparian Structure and Composition	B, C	Field biologists assess riparian communities based on successional character, species, and non-natives resulting in an output of GOOD, FAIR, or POOR.
Aquatic Species Structure and Composition	B, C	Based on variables from field observations and SDAM a rating of GOOD, FAIR or POOR was selected.
Water Quality	B, C	Field biologists look to see if water quality was GOOD, FAIR, POOR by presence of sheen, oily film, murky water, turbid water.
Water Temperature	C	Field biologists observe if there is PRESENCE or ABSENCE of shading, as well as land use that affect routing of runoff; and infiltration, dams, and reservoirs.
Sedimentation	B	Field biologists determine if there is NORMAL or EXCESSIVE input of fine sediments (sand and gravel) located out of the active channel (bars and floodplain) rather than within the channel at low flows.

2.1.2 Field Practicum

The assessment will include all impacted perennial streams, all impacted fish-bearing streams, (based on current information from ODFW biologists), and one additional impacted intermittent stream per 4th Field HUC. The assessment will use the stream with the highest acreage of impact to represent the watershed, unless that stream is not typical of streams within the watershed. In such a case, a typical stream will be assessed instead.

Wetland biologists conducted stream assessments on-site, and filled out a stream functional assessment datasheet based on the ratings summarized in Table 2, above. The stream functional assessment datasheets are located in Attachment A. Stream assessment crew used their observations and best professional judgment when filling out the datasheets.

2.2 Functional Assessment Scoring

Functional attributes are rated predominately with Good (+1), Fair (0) and Poor (-1), based on the datasheet. In Table 3 there is an "X" where the functional attribute would influence a function. If the rating for a functional attribute is Good, a "+1," will be placed in the location of the "X". If the rating is Poor, a "-1," will be placed in the location of the "X." The functional category will be assessed based on the final number of functional attributes totaled. Table 4 displays a stream that has a "+1" for all attributes, which is the highest a stream can have. Therefore, the highest numbers for hydrologic and geomorphic functions are 10, biological function is 22, and chemical and nutrient function is 13. Final scores will derive a high, medium, or low rating for each function. Section 3.0 describes this in greater detail.

Table 3. High Functional Assessment

Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	+1			+1										10
Sub/surface Transfer	+1		+1											
Flow variation	+1	+1	+1	+1		+1		+1						
Geomorphic Functions (G)														
Sediment Continuity	+1	+1		+1		+1								10
Sediment Mobility	+1			+1	+1	+1	+1	+1						
Biological Functions (B)														
Maintain Biodiversity	+1		+1	+1				+1	+1	+1				22
Create Habitat	+1	+1	+1	+1	+1	+1	+1	+1	+1				+1	
Sustain Trophic structure	+1			+1		+1		+1	+1	+1	+1			
Chemical and Nutrient Functions (C)														
Nutrient Cycling	+1			+1					+1		+1			13
Chemical regulation	+1			+1				+1	+1		+1			
Thermal regulation			+1						+1		+1	+1		

NA – Is not included in field practicum, therefore does not have a rating and is not factored in to the overall function of a stream.

Each functional category will be given a final score of high medium or low based on the number of attributes per function.

Table 4. Functional Scoring

Functional Category	High	Medium	Low
Hydrologic	7-10	4-6	0-3
Geomorphic	7-10	4-6	0-3
Biological	15-22	8-14	0-7
Chemical and Nutrient	10-13	5-9	0-4

When conducting assessments, wetland biologists provided their best professional judgment of the functions and values of each stream by functional category. They rated functions as good, fair or poor; high, medium, or low; or other three-tiered ranking as described on the data form. If there was disparity between the assessment and the professional judgment of the wetland biologists, the judgment of the wetland biologists was considered predominant because there is not a DSL-approved stream assessment protocol and the protocol described here is not fully developed, is not based in research, and consequently provides a scoring system that is rudimentary. However, IPC believes that the exercise of having the field biologists respond to the indicators on the data form and assess the stream with these indicators will help inform their judgment about the functions of the streams.

2.2.1 Hydrologic Function

Based on table 2.1, the highest number a stream can receive for hydrology function is 10. Therefore streams with values of 0–3 receive a low score. Streams with a value of 4–6 receive a medium score, and streams with a value of 7–10 receive a high score.

2.2.2 Geomorphic Function

Based on table 2.1, the highest number a stream can receive for geomorphic function is 10. Therefore streams with values of 0–3 receive a low score. Streams with a value of 4–6 s receive a medium score, and streams with a value of 7–10 s receive a high score.

2.2.3 Biological Function

Based on table 2.1, the highest number a stream can receive for biological function is 22. Therefore streams with values of 0–7 receive a low score. Streams with a value of 8–14 receive a medium score, and streams with a value of 15-22 receive a high score.

2.2.4 Chemical and nutrient function

Based on table 2.1, the highest number a stream can receive for chemical and nutrient function is 13. Therefore streams with values of 0–4 receive a low score. Streams with a value of 5–9 receive a medium score, and streams with a value of 10–13 receive a high score.

3.0 RESULTS

Functional ratings for each stream are summarized in Table 5. Most of the streams that were assessed, as with most of the streams in the site boundary, are ephemeral streams in settings that offer little if any shade, on erodible soils and relatively steep slopes. In combination, these factors result in low assessment scores for most of the streams.

Table 5. Summary of Stream Scores

Stream	Functional Group Rating				Aggregated Score
	Hydrologic	Geomorphic	Biological	Chemical	
UN_G_127*	-7	-3	-9	-6	-25
UN_12_1365**	3	2	10	6	21
BA_BR_461***	-4	1	-8	-7	-18
BAPRO_332**	-3	-2	-4	-6	-15
MA_G_259**	-3	0	-10	-6	-19
MA_G_214**	-8	-6	-15	-9	-38
MA_TM_012**	-5	-2	-12	-8	-27
MA_TM_405***	-7	-7	-19	-11	-44

*This stream is no longer within the site boundary.

**This stream is inside the site boundary but is no longer proposed for removal-fill impact.

***This stream is inside the site boundary and is proposed for minor removal-fill impact.

Individual stream data forms are in Attachment A. Photos of the streams are in Attachment B.

4.0 REFERENCES

- Cary, Dan. 2013a. Personal Communication. Email from Dan Cary, ODSL Natural Resource Coordinator to John Gordon at Tetra Tech confirming that the streams proposed for assessment are acceptable. October 10, 2013.
- Cary, Dan. 2013b. Personal communication. Email from Dan Cary, ODSL Natural Resource Coordinator to John Gordon at Tetra Tech, regarding stream assessment protocol. July 24, 2013.
- Gordon, John. 2013. Email from John Gordon at Tetra Tech to Dan Cary, ODSL Natural Resource Coordinator, submitting for approval the streams proposed for assessment. October 2, 2013.
- ODSL. 2012a. Oregon State Archives. Oregon Administrative Rules. Division 85. Administrative Rules Governing the Issuance and Enforcement of Removal-Fill Authorizations within Waters of Oregon Including Wetlands. Available at:
http://arcweb.sos.state.or.us/pages/rules/oars_100/oar_141/141_085.html
- ODSL. 2012b. Guidance for Assessing Stream Function and Values under the Oregon Removal Fill Program. Available on at
http://www.oregon.gov/dsl/PERMITS/docs/Interim_Guidance_Stream_Mitigation_11212_012.pdf
- USEPA 2012. Draft Functional Assessment Framework Excerpt. Attributes, Considerations, Criteria. U.S. Environmental Protection Agency, Region 10, Portland, OR. Prepared for the EPA by Skidmore Restoration Consulting and Inter-fluve.

Attachment A: B2H Stream Functional Assessment Datasheet

Stream Identification Code:		UN_G_127		Aggregated Functional Score:		-25								
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	-1			-1										-7
Sub/surface Transfer	-1		-1											
Flow variation	-1	-1	-1	-1		0		1						
<i>Subtotal</i>	-3	-1	-2	-2	0	0	0	1	0	0	0	0	0	
Geomorphic Functions (G)														
Sediment Continuity	-1	-1		-1		0								-3
Sediment Mobility	-1			-1	1	0	0	1						
<i>Subtotal</i>	-2	-1	0	-2	1	0	0	1	0	0	0	0	0	
Biological Functions (B)														
Maintain Biodiversity	-1		-1	-1				1	0	-1				-9
Create Habitat	-1	-1	-1	-1	1	0	0	1	0				-1	
Sustain Trophic structure	-1			-1		0		1	0	-1	-1			
<i>Subtotal</i>	-3	-1	-2	-3	1	0	0	3	0	-2	-1	0	-1	
Chemical and Nutrient Functions (C)														
Nutrient Cycling	-1			-1					0		-1			-6
Chemical regulation	-1			-1				1	0		-1			
Thermal regulation			-1						0		-1	1		
<i>Subtotal</i>	-2	0	-1	-2	0	0	0	1	0	0	-3	1	0	

Stream Identification Code:			UN_12_1365		Aggregated Functional Score:			21						
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	0			0										3
Sub/surface Transfer	0		1											
Flow variation	0	0	1	0		0		1						
Subtotal	0	0	2	0	0	0	0	1	0	0	0	0	0	
Geomorphic Functions (G)														
Sediment Continuity	0	0		0		0								2
Sediment Mobility	0			0	0	0	1	1						
Subtotal	0	0	0	0	0	0	1	1	0	0	0	0	0	
Biological Functions (B)														
Maintain Biodiversity	0		1	0				1	1	1				10
Create Habitat	0	0	1	0	0	0	1	1	1				-1	
Sustain Trophic structure	0			0		0		1	1	1	0			
Subtotal	0	0	2	0	0	0	1	3	3	2	0	0	-1	
Chemical and Nutrient Functions (C)														
Nutrient Cycling	0			0					1		0			6
Chemical regulation	0			0				1	1		0			
Thermal regulation			1						1		0	1		
Subtotal	0	0	1	0	0	0	0	1	3	0	0	1	0	

Stream Identification Code:			BA_BR_461		Aggregated Functional Score:			-18						
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	-1			0										4
Sub/surface Transfer	-1		-1											
Flow variation	-1	0	-1	0		1		0						
<i>Subtotal</i>	-3	0	-2	0	0	1	0	0	0	0	0	0	0	
Geomorphic Functions (G)														
Sediment Continuity	-1	0		0		1								1
Sediment Mobility	-1			0	1	1	0	0						
<i>Subtotal</i>	-2	0	0	0	1	2	0	0	0	0	0	0	0	
Biological Functions (B)														
Maintain Biodiversity	-1		-1	0				0	-1	-1				-8
Create Habitat	-1	0	-1	0	1	1	0	0	-1				-1	
Sustain Trophic structure	-1			0		1		0	-1	-1	0			
<i>Subtotal</i>	-3	0	-2	0	1	2	0	0	-3	-2	0	0	-1	
Chemical and Nutrient Functions (C)														
Nutrient Cycling	-1			0					-1		0			-7
Chemical regulation	-1			0				0	-1		0			
Thermal regulation			-1						-1		0	-1		
<i>Subtotal</i>	-2	0	-1	0	0	0	0	0	-3	0	0	-1	0	

Stream Identification Code:		BAPRO_332		Aggregated Functional Score:		-15									
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL	
Hydrologic Functions (H)															
Surface Water Storage	-1			-1										-3	
Sub/surface Transfer	-1		1												
Flow variation	-1	-1	1	-1		0		1							
Subtotal	-3	-1	2	-2	0	0	0	1	0	0	0	0	0		
Geomorphic Functions (G)															
Sediment Continuity	-1	-1		-1		0								-2	
Sediment Mobility	-1			-1	1	0	1	1							
Subtotal	-2	-1	0	-2	1	0	1	1	0	0	0	0	0		
Biological Functions (B)															
Maintain Biodiversity	-1		1	-1				1	-1	0				-4	
Create Habitat	-1	-1	1	-1	1	0	1	1	-1				-1		
Sustain Trophic structure	-1			-1		0		1	-1	0	0				
Subtotal	-3	-1	2	-3	1	0	1	3	-3	0	0	0	-1		
Chemical and Nutrient Functions (C)															
Nutrient Cycling	-1			-1					-1		0			-6	
Chemical regulation	-1			-1				1	-1		0				
Thermal regulation			1						-1		0	-1			
Subtotal	-2	0	1	-2	0	0	0	1	-3	0	0	-1	0		

Stream Identification Code:			MA_G_259		Aggregated Functional Score:			-19						
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	-1			1										-3
Sub/surface Transfer	-1		-1											
Flow variation	-1	1	-1	1		0		-1						
<i>Subtotal</i>	-3	1	-2	2	0	0	0	-1	0	0	0	0	0	
Geomorphic Functions (G)														
Sediment Continuity	-1	1		1		0								0
Sediment Mobility	-1			1	0	0	0	-1						
<i>Subtotal</i>	-2	1	0	2	0	0	0	-1	0	0	0	0	0	
Biological Functions (B)														
Maintain Biodiversity	-1		-1	1				-1	-1	-1				-10
Create Habitat	-1	1	-1	1	0	0	0	-1	-1				-1	
Sustain Trophic structure	-1			1		0		-1	-1	-1	0			
<i>Subtotal</i>	-3	1	-2	3	0	0	0	-3	-3	-2	0	0	-1	
Chemical and Nutrient Functions (C)														
Nutrient Cycling	-1			1					-1		0			-6
Chemical regulation	-1			1				-1	-1		0			
Thermal regulation			-1						-1		0	-1		
<i>Subtotal</i>	-2	0	-1	2	0	0	0	-1	-3	0	0	-1	0	

Stream Identification Code:			MA_G_214		Aggregated Functional Score:			-38						
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	-1			-1										-8
Sub/surface Transfer	-1		-1											
Flow variation	-1	-1	-1	-1		0		0						
Subtotal	-3	-1	-2	-2	0	0	0	0	0	0	0	0	0	
Geomorphic Functions (G)														
Sediment Continuity	-1	-1		-1		0								-6
Sediment Mobility	-1			-1	-1	0	0	0						
Subtotal	-2	-1	0	-2	-1	0	0	0	0	0	0	0	0	
Biological Functions (B)														
Maintain Biodiversity	-1		-1	-1				0	-1	-1				-15
Create Habitat	-1	-1	-1	-1	-1	0	0	0	-1				0	
Sustain Trophic structure	-1			-1		0		0	-1	-1	0			
Subtotal	-3	-1	-2	-3	-1	0	0	0	-3	-2	0	0	0	
Chemical and Nutrient Functions (C)														
Nutrient Cycling	-1			-1					-1		0			-9
Chemical regulation	-1			-1				0	-1		0			
Thermal regulation			-1						-1		0	-1		
Subtotal	-2	0	-1	-2	0	0	0	0	-3	0	0	-1	0	

Stream Identification Code:			MA_TM_012		Aggregated Functional Score:			-27						
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	-1			0										-5
Sub/surface Transfer	-1		-1											
Flow variation	-1	0	-1	0		1		-1						
<i>Subtotal</i>	-3	0	-2	0	0	1	0	-1	0	0	0	0	0	
Geomorphic Functions (G)														
Sediment Continuity	-1	0		0		1								-2
Sediment Mobility	-1			0	0	1	-1	-1						
<i>Subtotal</i>	-2	0	0	0	0	2	-1	-1	0	0	0	0	0	
Biological Functions (B)														
Maintain Biodiversity	-1		-1	0				-1	-1	-1				-12
Create Habitat	-1	0	-1	0	0	1	-1	-1	-1				0	
Sustain Trophic structure	-1			0		1		-1	-1	-1	0			
<i>Subtotal</i>	-3	0	-2	0	0	2	-1	-3	-3	-2	0	0	0	
Chemical and Nutrient Functions (C)														
Nutrient Cycling	-1			0					-1		0			-8
Chemical regulation	-1			0				-1	-1		0			
Thermal regulation			-1						-1		0	-1		
<i>Subtotal</i>	-2	0	-1	0	0	0	0	-1	-3	0	0	-1	0	

Stream Identification Code:			MA_TM_405		Aggregated Functional Score:			-44						
Functional Attribute	Overbank Flow (OBF)	Effective Discharge (ED)	Base Flow	Bed Mobility	Sediment Characteristic	Bank Stability	Hydraulic Variability	Stream Habitat	Riparian Species Structure and Composition	Aquatic Species Structure and Composition	Water Quality	Water Temperature	Sedimentation	TOTAL
Hydrologic Functions (H)														
Surface Water Storage	-1			0										-7
Sub/surface Transfer	-1		-1											
Flow variation	-1	0	-1	0		-1		-1						
Subtotal	-3	0	-2	0	0	-1	0	-1	0	0	0	0	0	
Geomorphic Functions (G)														
Sediment Continuity	-1	0		0		-1								-7
Sediment Mobility	-1			0	-1	-1	-1	-1						
Subtotal	-2	0	0	0	-1	-2	-1	-1	0	0	0	0	0	
Biological Functions (B)														
Maintain Biodiversity	-1		-1	0				-1	-1	-1				-19
Create Habitat	-1	0	-1	0	-1	-1	-1	-1	-1				-1	
Sustain Trophic structure	-1			0		-1		-1	-1	-1	-1			
Subtotal	-3	0	-2	0	-1	-2	-1	-3	-3	-2	-1	0	-1	
Chemical and Nutrient Functions (C)														
Nutrient Cycling	-1			0					-1		-1			-11
Chemical regulation	-1			0				-1	-1		-1			
Thermal regulation			-1						-1		-1	-1		
Subtotal	-2	0	-1	0	0	0	0	-1	-3	0	-3	-1	0	

Attachment B: B2H Stream Functional Assessment Photographs



UN_G_127. View to north. Stream has eroded a channel across the road instead of going through the culvert.



UN12_1365_RV2013. Typical conditions of the Clover Creek channel showing impact from cattle. This is about 10 feet upstream of the crossing.



BA_BR_461. View to southeast, showing channel and morphology of BA_BR_461 downstream of the existing crossing.



MA_TM_405. View to south, downstream, of MA_TM_405 below the existing crossing. Erosion of the banks, and sinuosity, are apparent.



MA_TM_012. View to the northwest, illustrating typical conditions in and along MA_TM_012.



MA_G_214. View to the west illustrating typical conditions in MA_G_214. Upland vegetation in the channel indicates that flow is probably very infrequent.



MA_G_259. View to the northeast of MA_G_259. A very light-colored silt deposit marks the channel.



BA_pro_332_NHD_part2. Viewed to the northwest, this photo illustrates a ford crossing, used by cattle and possibly farm equipment, of the Burnt River use

APPENDIX E
LEASE AGREEMENT

Appendix U, Mitigation Location Information

Compensatory Wetland Mitigation Site Location Information

Potential Mitigation Site

Street, Road or other descriptive location:

Site is located approximately 10 miles east-northeast of La Grande, Oregon. From La Grande proceed north toward Imbler on Hwy 82. Turn right on Booth Lane and head east for approximately 6.5 miles. Turn left onto the gravel drive at 67649 Booth Lane, where there will be three grain bins and a large gateway. At the end of the driveway, cross a bridge over Catherine Creek. Turn left after the bridge and drive north approximately 0.2 miles on a dirt farm access road along the edge of a mint field. The approximately 14-acre site is immediately north of the mint field. The site consists of fallow grassland, an old oxbow of Catherine Creek, and approximately 2.6 acres of PEM and PSS wetlands which were delineated by IPC in August 2015.

Quarter/Quarter Section: NW $\frac{1}{4}$, of the SW $\frac{1}{4}$

Section: 19

Township: 2 South

Range: 40 East

In or near (city or town): La Grande

County: Union

Tax Map #: 02S40E

Tax Lot #: 3200

Wetland/Waterway (pick one): Waterway (Catherine Creek)

River Mile: 9.75 (upstream from the confluence at the Grande Ronde River)

Latitude: 45.375216

Longitude: -117.869221

Waterway/Watershed/HUC: Catherine Creek/Lower Snake/170601

BLOCK 9 ADJACENT PROPERTY OWNERS FOR PROJECT AND MITIGATION SITE

Appendix V, Names and Addresses of Property Owners

Property owner information for all property owners of record within the notification area will be provided in Exhibit F of the ASC, including each Removal-Fill site and all associated mitigation sites. The following list contains property owners of accessible parcels where wetland delineations for the Project have been performed to-date (Table F-1).

Table F-1. Property Owners of Accessible Parcels Where Wetland Delineations Have Been Performed.

Owner	Address	County
PINE CANYON RANCH GP	PO BOX 4965, PASO ROBLES, CA 93447	Morrow
BIRCH CREEK LAND LLC	60732 LITTLE BUTTERCREEK RD, HEPPNER, OR 97836	Morrow
BIRCH CREEK LAND LLC	60732 LITTLE BUTTERCREEK RD, HEPPNER, OR 97836	Morrow
STATE OF OREGON	4040 FAIRVIEW INDUSTRIAL DR SE #MS2, SALEM, OR 97302-1142	Umatilla
HANCOCK TIMBERLAND X INC	17700 SE MILL PLAIN BLVD #STE 180, VANCOUVER, WA 98683-7582	Umatilla
CUNNINGHAM SHEEP CO	PO BOX 1186, PENDLETON, OR 97801	Umatilla
SKILLMAN E MARGARET (LE) ETAL	36971 CUNNINGHAM RD, ECHO, OR 97826	Umatilla
SKILLMAN E MARGARET (LE) ETAL	36971 CUNNINGHAM RD, ECHO, OR 97826	Umatilla
HASCALL NEVA L	PO BOX 583, PILOT ROCK, OR 97868-0583	Umatilla
WIERZBA MYRON & JOAN	34368 BUTTER CREEK RD, ECHO, OR 97826-9141	Umatilla
WEINKE ADOLPH & MARY K	PO BOX 547, PILOT ROCK, OR 97868	Umatilla
HEMPHILL RICHARD C & JEAN E (TRS) ETAL	PO BOX 189, PILOT ROCK, OR 97868-0189	Umatilla
DRAPER RAMONA SUE	1105 SE ALEXANDER AVE, PENDLETON, OR 97801-2420	Umatilla
DRAPER RAMONA SUE	1105 SE ALEXANDER AVE, PENDLETON, OR 97801-2420	Umatilla
LUKE JULIE D	8438 W GAGE BLVD, KENNEWICK, WA 99336-1075	Umatilla
CUNNINGHAM SHEEP CO	PO BOX 1186, PENDLETON, OR 97801	Umatilla
MCLEAN JOHN II & MARGARET H	P O BOX 96 TRSTS, NORTH POWDER, OR 97867-0096	Union
MCLEAN JOHN II & MARGARET H	P O BOX 96 TRSTS, NORTH POWDER, OR 97867-0097	Union
MCLEAN JOHN II & MARGARET H	P O BOX 96 TRSTS, NORTH POWDER, OR 97867-0098	Union
MCLEAN JOHN II & MARGARET H	P O BOX 96 TRSTS, NORTH POWDER, OR 97867-0099	Union
N & C LAND LLC	71062 PERKINS RD, ECHO, OR 97826-9036	Union
N & C LAND LLC	71062 PERKINS RD, ECHO, OR 97826-9036	Union
USA FOREST SERVICE	BOX, LA GRANDE, OR 97850	Union
USA FOREST SERVICE	BOX, LA GRANDE, OR 97850	Union
USA FOREST SERVICE	BOX, LA GRANDE, OR 97850	Union
USA FOREST SERVICE	BOX, LA GRANDE, OR 97850	Union

Owner	Address	County
USA FOREST SERVICE	BOX, LA GRANDE, OR 97850	Union
USA FOREST SERVICE	BOX, LA GRANDE, OR 97850	Union
BOOTHMAN RANCHES INC	P O BOX 3253, LA GRANDE, OR 97850	Union
N & C LAND LLC	71062 PERKINS RD, ECHO, OR 97826-9036	Union
OREGON DEPT OF FISH & WILDLIFE	3406 CHERRY AVE NE, SALEM, OR 97303-4924	Union
BOOTHMAN RANCHES INC	P O BOX 3253, LA GRANDE, OR 97850	Union
WILLIAMS JOHN COLLIER	P O BOX 1384, LA GRANDE, OR 97850-6384	Union
WILLIAMS JOHN COLLIER	P O BOX 1384, LA GRANDE, OR 97850-6384	Union
NA	NA	Union
WILLIAMS JOHN COLLIER	P O BOX 1384, LA GRANDE, OR 97850-6384	Union
ALLEN POTATO LLC	48748 MCCARTY BRIDGE RD, NORTH POWDER, OR 97867	Union
WILLIAMS JOHN COLLIER	P O BOX 1384, LA GRANDE, OR 97850-6384	Union
ALLEN POTATO LLC	48748 MCCARTY BRIDGE RD, NORTH POWDER, OR 97867	Union
GOLDEN POND TIMBERLANDS INC	17700 SE MILL PLN BLVD STE 180, VANCOUVER, WA 98683	Union
JOHN HANCOCK LIFE INSURANCE CO	17700 SE MILL PLN BLVD STE 180, VANCOUVER, WA 98683	Union
HANCOCK TIMBERLAND XI INC	17700 SE MILL PLAIN BLVD #180, VANCOUVER, WA 98683	Union
HANCOCK TIMBERLAND XI INC	17700 SE MILL PLAIN BLVD #180, VANCOUVER, WA 98683	Union
WILLIAMS JOHN COLLIER	P O BOX 1384, LA GRANDE, OR 97850-6384	Union
ALLEN POTATO LLC	48748 MCCARTY BRIDGE RD, NORTH POWDER, OR 97867	Union
ALLEN POTATO LLC	48748 MCCARTY BRIDGE RD, NORTH POWDER, OR 97867	Union
WILLIAMS JOHN COLLIER	P O BOX 1384, LA GRANDE, OR 97850-6384	Union
PENDLETON RANCHES INC	P O BOX 1186, PENDLETON, OR 97801-0018	Union
FOR THE GIRLS LLC	1905 SE 10TH AVE, PORTLAND, OR 97214-4659	Union
FOR THE GIRLS LLC	1905 SE 10TH AVE, PORTLAND, OR 97214-4659	Union
FOR THE GIRLS LLC	1905 SE 10TH AVE, PORTLAND, OR 97214-4659	Union
FOR THE GIRLS LLC	1905 SE 10TH AVE, PORTLAND, OR 97214-4659	Union
TROY HELEN M TTEE ETAL	2055 SECOND ST, BAKER CITY, OR 97814	Baker
M R KING RANCHES INC	PO BOX 115, DURKEE, OR 97905	Baker
BATES LAWRENCE C & BETTY L	PO BOX 146, DURKEE, OR 97905	Baker
SHOOK DOUGLAS & SANDIE ETAL	PO BOX 144, DURKEE, OR 97905	Baker
TRINDLE LAND LLC	20859 SUNSET LN, BAKER CITY, OR 97814	Baker

Owner	Address	County
HAT BRAND LAND & LIVESTOCKLLC	PO BOX 1003, BAKER CITY, OR 97814	Baker
HAT BRAND LAND & LIVESTOCKLLC	PO BOX 1003, BAKER CITY, OR 97814	Baker
BDL LLC	2681 NEATON CT, WELLINGTON, FL 33414	Baker
TRINDLE LAND LLC	20859 SUNSET LN, BAKER CITY, OR 97814	Baker
MOOSE CREEK INVESTMENTS LLC	PO BOX 14001-363, KETCHUM, ID 83340	Baker
TROY HELEN M TTEE ETAL	2055 SECOND ST, BAKER CITY, OR 97814	Baker
TROY HELEN M TTEE	2055 SECOND ST, BAKER CITY, OR 97814	Baker
TRINDLE LAND LLC	20859 SUNSET LN, BAKER CITY, OR 97814	Baker
TRINDLE LAND LLC	20859 SUNSET LN, BAKER CITY, OR 97814	Baker
THE DLX LLC	45824 HERITAGE RANCH RD, BAKER CITY, OR 97814	Baker
THE DLX LLC	45824 HERITAGE RANCH RD, BAKER CITY, OR 97814	Baker
THE DLX LLC	45824 HERITAGE RANCH RD, BAKER CITY, OR 97814	Baker
THE DLX LLC	45824 HERITAGE RANCH RD, BAKER CITY, OR 97814	Baker
RUFENACHT LAND & CATTLE COMP	5060 N 40TH ST STE# 106, PHOENIX, AZ 85018	Baker
SMOKE RANCH LP	PO BOX 251, NORTH POWDER, OR 97867	Baker
DAVIS GARY R & LOIS A	4362 SAGE RD, ONTARIO, OR 97914	Baker
USA	FEDERAL BLDG, BAKER CITY, OR 97814	Baker
OWEN RICHARD B & GEORGIA TTEE	PO BOX 137, DURKEE, OR 97905	Baker
OWEN RICHARD B & GEORGIA TTEE	PO BOX 137, DURKEE, OR 97905	Baker
OWEN RICHARD B & GEORGIA TTEE	PO BOX 137, DURKEE, OR 97905	Baker
USA BLM	FEDERAL BLDG, BAKER CITY, OR 97814	Baker
BUNCH LEVI A	31413 BURNT RIVER CANYON LN, DURKEE, OR 97905	Baker
TROY HELEN M TTEE ETAL	2055 SECOND ST, BAKER CITY, OR 97814	Baker
OWEN RICHARD B & GEORGIA TTEE	PO BOX 137, DURKEE, OR 97905	Baker
JONES SHIRLEY E TTEE	526 HWY 20 #26, ONTARIO, OR 97914	Baker
OWEN RICHARD B & GEORGIA TTEE	PO BOX 137, DURKEE, OR 97905	Baker
OWEN RICHARD B & GEORGIA TTEE	PO BOX 137, DURKEE, OR 97905	Baker

Owner	Address	County
OWEN RICHARD B & GEORGIA TTEE	PO BOX 137, DURKEE, OR 97905	Baker
MCCALL LELAND R TTEE ETAL	36943 HILL CREEK RD, BAKER CITY, OR 97814	Baker
STIMMEL MARK D & MAXINE M	3726 SAGE RD, HOMEDALE, ID 83628	Malheur
FAITH LAND CO LLC	60023 RIDGEVIEW DR W, BEND, OR 97702	Malheur
USA	GEN DEL, WASHINGTON, DC 20013	Malheur
USA	GEN DEL, WASHINGTON, DC 20013	Malheur
SCHULTZ DONALD & SANDRA	4415 OLD OREGON TRAIL, VALE, OR 97918	Malheur
USA	GEN DEL, WASHINGTON, DC 20013	Malheur
USA	GEN DEL, WASHINGTON, DC 20013	Malheur
STIMMEL MARK D & MAXINE M	3726 SAGE RD, HOMEDALE, ID 83628	Malheur

BLOCK 10 CITY/COUNTY PLANNING DEPARTMENT LAND USE AFFIDAVIT

City/County Planning Department Affidavits

Not applicable.

BLOCK 11 COASTAL ZONE CERTIFICATION

Not applicable.

BLOCK 12 SIGNATURES

Appendix W, Signatures

Applicant signature will be provided on the final JPA.

Property owner information for each Removal-Fill site and all associated mitigation sites will be provided in Exhibit F of the ASC.

SUPPLEMENTAL REFERENCE DOCUMENT

Erosion and Sediment Control Plan

May 3, 2012

Ms. Jackie Ray
Oregon Department of Environmental Quality
700 SE Emigrant, Suite 330
Pendleton, OR 97801

Dear Ms. Ray:

Idaho Power Company (IPC) proposes to construct an overhead, high-voltage transmission line, known as the Boardman to Hemingway Transmission Line Project (Project), from near Boardman, Oregon through Morrow, Umatilla, Union, Baker and Malheur counties and into southwest Idaho. We are currently in the permitting phase of the Project that is occurring on two parallel paths. Idaho Power is pursuing a site certificate from the Oregon Energy Facility Siting Council (EFSC) as administered by the Oregon Department of Energy (Department). A federal Environmental Impact Statement (EIS) is also under development. The US Department of Interior, Bureau of Land Management (BLM) is the lead federal agency for the EIS process.

The requirements of the EFSC certificate are found in Oregon Administrative Rules OAR 345, division 021. As part of the required soils analysis (OAR 345-021-0010(i), Exhibit I) the EFSC relies, in part, on meeting soil protection standards by a determination that the Project can be expected to receive a National Pollutant Discharge Elimination System (NPDES) 1200-C permit for stormwater discharge. OAR 345-021-0000(7) allows the applicant to submit the application for the site certificate prior to applying for the federally delegated permit, but requires a copy of the federally delegated permit be submitted to the department to support their completeness finding. An initial corridor alignment has been studied and forms the basis for the preliminary Application for Site Certificate, 1200-C permit, and other ancillary permits, however, the final alignment may be modified as the EIS and EFSC processes proceed. The final 1200-C permit cannot be completed until the two decision bodies concur on the final alignment.

The purpose of this letter is to transmit the preliminary application for a 1200-C stormwater permit for the construction of the Project. IPC is submitting this preliminary application including a preliminary Erosion and Sediment Control Plan (ESCP) to facilitate ODOE and ODEQ review of the preliminary Application for Site certification which is scheduled for submittal to ODOE later this year. In absence of a complete ESCP, based on the final alignment, IPC has included an example of the plan format, content, and details that would comprise the plan when submitted.

The basis for this approach was established at a January 12, 2012 project meeting attended by Ms. Krista Ratliff, of DEQ's Bend, Oregon office. In that meeting Pike Energy, LLC, IPC's engineer, had completed preliminary erosion and sediment control

plan (ESCP) drawings that comply with many of the requirements of the 1200-C permit. The result of that meeting was that IPC would present a preliminary 1200-C permit application, including the preliminary ESCP as a means of furthering the EFSC process. During the meeting, it was stated that the EFSC process can proceed without a final 1200-C permit if DEQ prepares a letter to EFSC that both acknowledges the initiation of the permit application process and states the estimated date when DEQ will complete its review and issue a permit decision. IPC understands that the project cannot proceed until the final 1200-C permit is obtained.

Enclosed are two copies of the preliminary 1200-C permit, including the preliminary ESCP, and the permit fee. We would appreciate your review and comments, with the understanding that later tasks may include DEQ production of the letter to EFSC, after this preliminary permit has been reviewed approved by your office.

We appreciate your consideration in this matter.

Sincerely,

A handwritten signature in black ink that reads "Todd Adams". The signature is written in a cursive style with a long horizontal flourish extending to the right.

Todd Adams
Project Manager

Cc: Z Funkhouser, IPC
M Bracke, IPC
D Dockter, IPC

DEQ USE ONLY	
File #:	_____
Application #:	_____
LLID/RM:	_____
River Mile:	_____
Legal Name Confirmed:	<input type="checkbox"/>
Notes:	_____

**APPLICATION FOR NEW
NPDES GENERAL PERMIT #1200-C**
For stormwater discharges to surface waters from construction activities disturbing one acre or more that do not meet automatic coverage requirements.



State of Oregon
Department of
Environmental
Quality

Oregon Department of Environmental Quality

DEQ USE ONLY	
Date Received:	_____
Amount: \$	_____
Check Name:	_____
Check #:	_____
Deposit #:	_____
Receipt #:	_____
Notes:	_____

* A project *may* be eligible for "automatic coverage" under NPDES general permit 1200-CN if stormwater *does not* discharge to a water body with a TMDL or 303(d) listing for sediment or turbidity *and* it meets one of the following criteria (see 1200-CN at <http://www.deq.state.or.us/wq/wqpermit/docs/general/npdes1200cn/1200CNPPermit.pdf>):

- 1) Disturbs less than one acre and is located in Gresham, Troutdale, or Wood Village.
- 2) Disturbs less than five acres and is located in Albany, Corvallis, Eugene, Milwaukie, Multnomah Co. (unincorporated areas), Springfield, West Linn, or Wilsonville.
- 3) Disturbs less than five acres and is within the jurisdictions of Clackamas Co. Water Environment Services [Gladstone, areas within Clackamas Co. Service Dist. #1 (excluding Happy Valley), and areas within the Surface Water Management Agency of Clackamas Co. (including Rivergrove)], Clean Water Services (Banks, Beaverton, Cornelius, Durham, Forest Grove, Hillsboro, King City, North Plains, Sherwood, Tigard, Tualatin, and Washington Co. within Urban Growth Boundary), or Rogue Valley Sewer Services (Central Point, Phoenix, Talent, and portions of Jackson Co. in NPDES MS4 permit area).

Please answer all questions.

A. PROJECT INFORMATION	
<p>1. Idaho Power Company Applicant (entity legally responsible for permit) Zach Funkhouser Contact Name (if different from applicant) 1221 West Idaho Street Address Boise ID 83702 City State Zip (208) 388-5375 zfunkhouser@idaho power.com Telephone E-Mail Address</p>	<p>2. Zach Funkhouser Invoice Contact Name (if different from applicant) (same as contact address) Address City State Zip Telephone E-Mail Address</p>
<p>3. Pike Energy Solutions, LLC Architect/Engineering Firm (Erosion & Sediment Control Plan) Aaron Storo Project Manager (503) 937-2000 astoro@pike.com Telephone E-Mail Address</p>	<p>4. To Be Determined Applicant's Designated Erosion and Sediment Control Inspector Company Name Telephone E-Mail Address</p>
<p>5. _____ Name of Project Boardman to Hemingway Transmission Line Address or Cross Street City State Zip County</p>	<p>6. Nature of Construction Activity <input type="checkbox"/> Single Family (SIC Code 1521) <input type="checkbox"/> Multi-Family Residential (SIC Code 1522) <input type="checkbox"/> Commercial (SIC Code 1542) <input type="checkbox"/> Industrial (SIC Code 1541) <input type="checkbox"/> Highway (SIC Code 1611) <input checked="" type="checkbox"/> Utilities (SIC Code 1623): Transmission Line <input type="checkbox"/> Other (include SIC Code): _____</p>

A. PROJECT INFORMATION (continued)

7. Approximate location of center of site:

Latitude: 45.012
Longitude: -117.838

For assistance: DEQ Location Tool at <http://deqgisweb.deq.state.or.us/llid/llid.html>

8. Project Size:

Total Site Acreage (acres): To Be Determined
Total Disturbed Area (acres): 5,228.9

9. Stormwater runoff during construction will flow to:

- Infiltration device(s)
- Creek/Stream (provide name):
- Ditch (provide name of receiving stream for ditch):
- Municipal storm sewer or drainage system (provide name of receiving stream for system):
- Other: See Attached Table A-9

10. Stormwater runoff during construction discharges directly to or through a storm sewer or drainage system that discharges to a water body with a Total Maximum Daily Load (TMDL) or 303(d) listing for turbidity or sedimentation? YES NO

For assistance: DEQ Lookup Tool at <http://deq12.deq.state.or.us/tmdl/default.aspx> or DEQ Map/Table at <http://deq12.deq.state.or.us/tmdl/default.aspx>

B. LAND USE COMPATIBILITY STATEMENT

Submit a DEQ Land Use Compatibility Statement (LUCS) form that has been completed by the local land use authority with this application. Attach the *original* LUCS and, if applicable, written findings by the local authority. DEQ will not process the application unless the local land use authority indicates on the LUCS form that the project is compatible with the local acknowledged comprehensive plan and land use regulations. See Attached Insert B-1

A copy of this form may be found at <http://www.deq.state.or.us/pubs/permithandbook/generallucs.pdf>

C. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE

The legally authorized representative *must* sign the application.

I hereby certify that the information contained in this application is true and correct to the best of my knowledge and belief. In addition, I agree to pay all permit fees required by Oregon Administrative Rules 340-045. This includes a compliance determination fee invoiced annually by DEQ to maintain the permit.

Vern Porter

VP, Delivery, Engineering and Operations

Name of Legally Authorized Representative (Type or Print)

Title

Signature of Legally Authorized Representative

Date

APPLICATION AND FEE SUBMITTAL

To authorize permit registration, the following must be completed and submitted to the appropriate DEQ regional office or DEQ Agent (see list of offices in application instructions, pp. 3-4):

- DEQ application form signed by the Legally Authorized Representative and meeting the signature requirements below.
- DEQ LUCS by local land use authority indicating the activity is compatible with local acknowledged comprehensive plan and land use regulations. Include the Findings if so stated on the LUCS.
- Stormwater Erosion and Sediment Control Plan Narrative, if applicable.
- Stormwater Erosion and Sediment Control Plan Drawings; full-sized hard copy and electronic PDF files.
- The fee for a new application is \$1,586 payable to Oregon DEQ and you must submit it with this application. Please note that DEQ will also invoice you for an annual fee of \$804 if your project needs permit coverage for more than a year. These fees are subject to change; please visit <http://www.deq.state.or.us/wq/rules/div045/tables.pdf> for current fees. If you are sending your application to a DEQ Agent, check with the DEQ Agent for appropriate fees and make check payable to the DEQ Agent.

**NPDES General Permit 1200-C for Construction Activities
Application Instructions**

A. PROJECT INFORMATION

1. Enter the legal name of the applicant. Permit coverage will be issued to this entity. This is the person, business, public organization, or other entity responsible for ensuring that erosion and sediment controls are in place and in working order through the life of the project.
 - The name must be a legal, active name registered with the Oregon Department of Commerce, Corporation Division in Salem at 503-378-4752 or http://egov.sos.state.or.us/br/pkg_web_name_srch_inq_login, unless otherwise exempted by their rules. If the name of the applicant is not registered with the Corporation Division and the applicant is a business entity, attach legal documents that verify the entity's existence with the application. The applicant may not use an assumed business name.
 - Permit coverage may be transferred from one party to another. For example, a developer may apply for a permit and then transfer the permit to a contractor. Transfer forms are available from DEQ or at <http://www.deq.state.or.us/wq/stormwater/constappl.htm>.
2. Provide invoice contact information for billing of DEQ annual permit fee if different from the applicant in #1 above.
3. Provide contact information for the Architect or Consulting Engineer who designed the Erosion and Sediment Control Plan (ESCP).
4. Provide information on the Erosion and Sediment Control Inspector. This is not a DEQ or DEQ Agent inspector; this is an inspector employed by the applicant. If the inspector has not been selected yet, please provide the name of consultant who prepared the ESCP and their ESC certification. When the inspector is selected, submit to DEQ or to the DEQ Agent, the name, contact information, training and experience (see condition A.12.b.iii of the 1200-C).
5. Provide the common name of the project (for example, the name of the subdivision), the location of the site with respect to crossroads in the area, and, if available, a street address.
6. Check the box that best describes the nature of the construction activity. If "other" is selected, describe the use and include a Standard Industrial Classification Code (visit <http://www.osha.gov/pls/imis/sicsearch.html> for codes).
7. Enter latitude and longitude for the approximate center of the site (DEQ Location Tool at <http://deqgisweb.deq.state.or.us/llid/llid.html> or at <http://deqapp1/website/lit/data.asp>).
8. Provide information on the project size as indicated (based on the total project and not just a single phase).
9. Indicate where stormwater runoff during construction will flow. Use your best judgment to determine the name of the receiving water body.
10. Indicate whether stormwater runoff during construction will discharge directly to or through a storm sewer or drainage system that discharges to a Total Maximum Daily Load (TMDL) or 303(d) listed water body for turbidity or sedimentation. To make this determination, the following tools are available on DEQ's website:
 - Map and table: <http://www.deq.state.or.us/WQ/TMDLs/basinmap.htm>
 - Lookup tool: <http://deq12.deq.state.or.us/tmdl/default.aspx>

B. LAND USE COMPATIBILITY STATEMENT

Complete as indicated.

C. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE

DEFINITION OF LEGALLY AUTHORIZED REPRESENTATIVE:

Please also provide the information requested in brackets []

- **Corporation** - president, secretary, treasurer, vice-president, or any person who performs principal business functions; or a manager of one or more facilities that is authorized in accordance to corporate procedure to sign such documents.
- **Partnership** - General partner *[list of general partners, their addresses, and telephone numbers]*.
- **Sole Proprietorship** - Owner(s) *[each owner must sign the application]*.
- **City, County, State, Federal, or other Public Facility** - Principal executive officer or ranking elected official.
- **Limited Liability Company** - Member *[articles of organization]*.
- **Trusts** - Acting trustee *[list of trustees, their addresses, and telephone numbers]*.

(please see 40 CFR §122.22 for more detail, if needed)

**NPDES General Permit 1200-C for Construction Activities
Application Instructions**

APPLICATION AND FEE SUBMITTAL

Submit this application, Narrative Parts I, II & III (if applicable), LUCS, Erosion and Sediment Control Plan(2 full-sized hard copies and 1 PDF copy), and the applicable fee to the appropriate DEQ regional office or DEQ Agent listed below. Contact the appropriate DEQ regional office or DEQ Agent for the best way to submit the electronic version of the ESCP.

- If you are in an area serviced by a DEQ Agent, check with the DEQ Agent for appropriate fees and make check payable to the DEQ Agent.
- If you are sending your application to DEQ, the fee for a new application is \$1,586 payable to the Oregon DEQ. Please note that DEQ will also invoice you for an annual fee of \$804 if your project needs permit coverage for more than a year. These fees are subject to change; visit <http://www.deq.state.or.us/wq/rules/div045/tables.pdf> for current fees.

<p align="center">DEQ Northwest Region 2020 SW 4th Avenue, Suite 400 Portland, OR 97201-4987 503-229-5438 or 1-800-452-4011</p>	<p align="center">DEQ Western Region 165 East 7th Avenue, Suite 100 Eugene, OR 97401 541-687-7326 or 1-800-452-4011</p>	<p align="center">DEQ Eastern Region 700 SE Emigrant Avenue, Suite 330 Pendleton, OR 97801 541-278-4605 or 1-800-452-4011</p>
<p align="center">City of Eugene 99 W. 10th Avenue Eugene, OR 97401 541-722-5519</p>	<p align="center">City of Hermiston 215 Gladys Avenue Hermiston, OR 97838 541-667-5025</p>	<p align="center">City of Troutdale 342 SW 4th Street Troutdale, OR 97060 503-674-7270</p>
<p align="center">Clean Water Services 2550 SW Hillsboro Highway Hillsboro, OR 97123 503-681-5101 <i>Includes Banks, Beaverton, Cornelius, Durham, Forest Grove, Gaston, Hillsboro, King City, North Plains, Sherwood, Tigard, Tualatin, and portions of Washington Co.</i></p>	<p align="center">Rogue Valley Sewer Services 138 West Vilas Road, PO Box 3130 Central Point, OR 97502 541-353-4594 <i>Includes Central Point, Phoenix, Talent, White City and portions of Jackson Co.</i></p>	<p align="center">Clack Co. Water Environmental Services 150 Beavercreek Road, Suite 430 Oregon City, OR 97045 503-742-4567 <i>Unincorporated Clackamas County and areas within the Cities of Rivergrove and Gladstone</i></p>

Insert B-1

Idaho Power Company (IPC) is applying for a Site Certification from the Energy Facility Siting Council (EFSC). IPC has elected to follow "Path B" under ORS 504 (1)(b), which means that the site certificate binds state and local jurisdictions to the EFSC's action and requires them to issue permits, licenses, and certificates for construction and operations of the facility. The substantive criteria identified by each county from their county comprehensive plans and land use ordinances are taken into account as part of the site certification process.

Table A-9. Stormwater Runoff to Streams

Route/County	Corridor Length (miles)	Subbasin Name	Subbasin HUC	Total Disturbed Area (acres)	Intermittent		Perennial		303d	
					Disturbed Area (acres)	% Total Disturbed Area	Disturbed Area (acres)	% Total Disturbed Area	Disturbed Area (acres)	% Total Disturbed Area
Proposed Corridor										
Morrow	36.3	Middle Columbia-Lake Wallula	17070101	218.0	18.8	8.6	--	--	--	--
		Umatilla	17070103	312.2	103.7	33.2	8.2	2.6	0.1	<0.1
Umatilla	49.5	Umatilla	17070103	869.0	76.3	8.8	22.0	2.5	1.1	0.1
		Upper Grande Ronde	17060104	11.7	--	--	--	--	--	--
Union	39.8	Powder	17050203	193.9	18.6	9.6	4.0	2.1	0.3	0.1
		Umatilla	17070103	4.5	--	--	--	--	--	--
		Upper Grande Ronde	17060104	592.4	25.4	4.3	10.2	1.7	--	--
Baker	75.0	Brownlee Reservoir	17050201	39.6	10.3	25.9	9.2	23.3	--	--
		Burnt	17050202	648.1	68.7	10.6	66.1	10.2	45.7	7.1
		Powder	17050203	532.8	74.4	14.0	7.9	1.5	--	--
Malheur	73.8	Brownlee Reservoir	17050201	135.4	9.1	6.7	1.2	0.9	--	--
		Bully	17050118	148.8	16.4	11.0	2.9	2.0	1.3	0.9
		Lower Malheur	17050117	329.4	59.4	18.0	<0.1	<0.1	2.3	0.7
		Lower Owyhee	17050110	251.7	42.4	16.8	2.1	0.8	6.5	2.6
		Middle Snake-Succor	17050103	229.3	51.9	22.6	2.2	1.0	--	--
		Willow	17050119	227.5	20.1	8.8	10.5	4.6	10.5	4.6
Owyhee	23.8	Middle Snake-Succor	17050103	540.0	104.0	19.3	8.1	1.5	6.0	1.1
Total	298.2			5,284.3	699.6	13.2	154.8	2.9	73.7	1.4
Double Mountain Alternate										
Malheur	7.4	Bully	17050118	0.7	--	--	<0.1	4.9	--	--
		Lower Malheur	17050117	124.9	44.8	35.9	--	--	--	--
		Lower Owyhee	17050110	14.7	6.0	41.1	--	--	--	--
Total	7.4			140.3	50.9	36.3	<0.1	4.9	--	--

BOARDMAN TO HEMINGWAY 500 kV PROJECT EROSION AND SEDIMENT CONTROL PLANS

OWNER

IDAHO POWER COMPANY
1221 WEST IDAHO STREET
BOISE, ID 83702

OWNER'S ENGINEER

PIKE ENERGY SOLUTIONS, LLC
700 NE MULTNOMAH ST. SUITE 500
PORTLAND, OR 97232
503-937-2000

CONTRACTOR

TO BE DETERMINED

NARRATIVE

IDAHO POWER IS PROPOSING TO CONSTRUCT AND OPERATE A NEW APPROXIMATELY 304-MILE-LONG, ELECTRIC TRANSMISSION LINE BETWEEN NORTHEASTERN OREGON AND SOUTHWESTERN IDAHO KNOWN AS THE BOARDMAN TO HEMINGWAY (B2H) PROJECT. THIS OVERHEAD 500-KV LINE WILL CONNECT THE GRASSLAND SUBSTATION LOCATED NEAR BOARDMAN, OREGON TO THE HEMINGWAY SUBSTATION NEAR MELBA, IDAHO. THE LINE WILL CROSS FEDERAL, STATE, AND PRIVATE LANDS IN SIX COUNTIES IN OREGON AND IDAHO.

THIS ESCP (FIVE SHEETS INCLUDING THIS TITLE SHEET) WAS DEVELOPED AS A REPRESENTATIVE SAMPLE OF A 1-MILE SECTION OF THE B2H PROJECT ROUTE. THIS SECTION OF THE PROJECT PORTRAYS A REPRESENTATIVE SAMPLE OF EXISTING CONDITIONS (E.G., TOPOGRAPHIC, SURFACE DRAINAGE, AND SOILS) AND FEATURES OF THE PROPOSED TRANSMISSION LINE PROJECT.

THE PROPOSED TRANSMISSION LINE CORRIDOR RIGHT OF WAY WIDTH IS 250 FEET. THE TRAVELED WIDTH OF ACCESS ROADS WILL RANGE FROM 16 TO 20 FEET (WITH A TOTAL DISTURBANCE WIDTH OF 25 FEET IN MOST AREAS). SHEET 2 SHOWS PROPOSED EXISTING AND NEW ACCESS ROADS WITHIN A 25-FOOT WIDE CORRIDOR OF DISTURBANCE. THE PROPOSED TRANSMISSION LINE WITHIN A 250-FOOT WIDE RIGHT OF WAY, PROPOSED STRUCTURES (I.E., TOWERS) WITHIN 250-FOOT SQUARE CONSTRUCTION WORK AREA, A PROPOSED LINE PULLING AND TENSIONING SITE, AND THE LOCATIONS OF PROPOSED SILT FENCES, ROCK FORD STREAM CROSSINGS, WATERBARS, AND OTHER EROSION AND SEDIMENT CONTROL MEASURES. PRESENTED ON SEPARATE SHEETS ARE DETAILS OF EROSION AND SEDIMENT CONTROL MEASURES AS WELL AS EXAMPLES OF STRUCTURE WORK AREAS AND ACCESS ROADS. WORK AREAS ARE TO BE RESTORED TO THEIR ORIGINAL CONDITION AND USE, OR AS AGREED TO BY LANDOWNERS. ROW AREAS WILL BE MAINTAINED AS PER IPC VEGETATION MANAGEMENT PLAN AND ROW MAINTENANCE STANDARDS.

NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE

CONSTRUCTION TO BUILD A 500 KV TRANSMISSION LINE
DISTURBED AREA
STRUCTURE LOCATIONS = 5.5 ACRES*
ACCESS ROADS = 8.3 ACRES*
TOTAL DISTURBED AREA = 13.8 ACRES*
PULLING AND TENSIONING SITES = 4.9 ACRES*
WORK AREAS = 0.0 ACRES*
TOTAL RIGHT-OF-WAY AREA = 38.4 ACRES*

SITE SOIL CLASSIFICATION:

STRUCTURE	DESCRIPTION	AVERAGE SLOPE
b-088	GURDANE SILTY CLAY LOAM	7%-25%
b-089	GURDANE SILTY CLAY LOAM	7%-25%
b-090	GURDANE ROCKLY COMPLEX	2%-20%
b-091	GURDANE ROCKLY COMPLEX	2%-20%
b-092	GURDANE SILTY CLAY LOAM	25%-45%
b-093	GURDANE SILTY CLAY LOAM	25%-45%

ON-SITE SOILS HAVE A MODERATE TO HIGH EROSION POTENTIAL.*
ALL FILL MATERIAL SHALL BE GENERATED ON-SITE OR IMPORTED FROM PERMITTED LOCAL QUARRIES.

RECEIVING WATER BODIES:*

UNNAMED TRIBUTARY TO MCKAY CREEK*

* NOTE: INFORMATION IS SPECIFIED ONLY TO THIS EXAMPLE MILE-LONG SEGMENT OF THE BOARDMAN TO HEMINGWAY 500 KV PROJECT. A FULL TABULATION CONDITIONS FOR ALL APPLICABLE SEGMENTS WILL BE PRESENTED AS A SUPPLEMENT TO THIS ESCP.

THE PERMITTEE IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS ESCP AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERCEDE REQUIREMENTS OF THIS PLAN.

SHEET INDEX EROSION AND SEDIMENT CONTROL PLANS

1 OF 5	EROSION AND SEDIMENT CONTROL TITLE SHEET
2 OF 5	EROSION AND SEDIMENT CONTROL PLAN
3 OF 5	EROSION AND SEDIMENT CONTROL DETAILS A
4 OF 5	EROSION AND SEDIMENT CONTROL DETAILS B
5 OF 5	EROSION AND SEDIMENT CONTROL DETAILS C

GENERAL NOTES:

- ONLY CLEAR AND GRUB FOR INSTALLATION OF EROSION CONTROL MEASURES PRIOR TO MASS CLEARING.
- NO CLEARING SHALL BE ALLOWED WITHOUT THE INSTALLATION OF THE APPROVED EROSION CONTROL MEASURES.
- THE MINIMUM MEASURES INCLUDE TEMPORARY CONSTRUCTION ENTRANCES, WATERBARS ON NEW (AND IMPROVED EXISTING) ROADS, AND PERIMETER EROSION CONTROL MEASURES (SEEDING OF NEW DISTURBED CUT AND FILL SLOPES). ADDITIONAL MEASURES (I.E. STRUCTURAL BMPs) WILL BE APPLIED AS NEEDED AND DETAILED IN THIS ESCP.
- THE EROSION AND SEDIMENT CONTROL INSPECTOR MUST PERFORM DAILY INSPECTIONS OF THE BMPs AND DISCHARGE OUTFALLS WHEN RAINFALL AND RUNOFF OCCUR.
- ALL ESCP CONTROLS AND PRACTICES MUST BE INSPECTED VISUALLY ONCE TO ENSURE THAT BMPs ARE IN WORKING ORDER PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY AND MUST BE INSPECTED VISUALLY ONCE EVERY TWO (2) WEEKS DURING INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS.
- DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. SEED MIX MUST BE APPROPRIATE TO SEASON AND SITE CONDITIONS, PREFERABLY NATIVE, AND FREE OF NOXIOUS WEEDS. CONSULT LOCAL AGRONOMIST OR EROSION CONTROL SPECIALISTS FOR SEED MIXES.
- PROVIDE PERMANENT EROSION CONTROL MEASURES ON ALL EXPOSED AREAS. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS EXPOSED AREAS BECOME STABILIZED, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. PROPERLY DISPOSE OF CONSTRUCTION MATERIALS AND WASTE, INCLUDING SEDIMENT RETAINED BY TEMPORARY BMPs.
- STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICAL IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED.
- TOPSOIL AND ALL EXCESS SOIL GENERATED BY GRADING ACTIVITIES SHALL BE STOCKPILED SEPARATELY AND CONTAINED WITH AN APPROPRIATE BMP TO PREVENT OFF-SITE SEDIMENTATION.
- CARE SHOULD BE TAKEN TO NOT MIX THE UNDERLYING SOIL AND THE TOPSOIL.
- ALL DISTURBED AREAS TO RECEIVE LAYER OF TOPSOIL SUFFICIENT IN DEPTH TO PROVIDE ADEQUATE GERMINATION OF PERMANENT SEED.
- VEGETATIVE BUFFER STRIPS SHALL BE UTILIZED TO REMOVE SEDIMENT AND OTHER POLLUTANTS FROM RUNOFF, WHERE EFFECTIVE.
- MINIMUM WIDTH OF THE VEGETATIVE BUFFER STRIP SHALL BE 50 FEET WITH SLOPES OF 1-2%, WITH ADDITIONAL WIDTH AND/OR CONTROLS AS NEEDED TO REDUCE AND CONTAIN EROSION AND SEDIMENTATION ON STEEPER SLOPES.
- NEAR TURBIDITY TMDL AND SIX(6) LISTED WATERBODIES, BUFFERS SHALL BE 50 FEET PLUS 25 FEET PER 5 DEGREES OF SLOPE.
- WHERE UNDISTURBED NATURAL BUFFER IS LESS THAN 50 FEET OR INFEASIBLE, SUPPLEMENT WITH ADDITIONAL EROSION AND SEDIMENT CONTROLS SUFFICIENT TO ACHIEVE SEDIMENT LOAD REDUCTION EQUIVALENT TO A 50-FOOT BUFFER.
- STRUCTURAL BMPs WILL BE INSTALLED IN ANY LOCATION WITH GROUND DISTURBANCE WITHIN 50 FEET OF A WATER BODY.
- STRUCTURAL BMPs WILL BE INSTALLED AT GROUND DISTURBANCE LOCATIONS WITHIN 75 FEET OF A WATER BODY IF THE AREA BELOW THE DISTURBANCE IS SLOPED STEEPER THAN 5% OR CONTAINS LESS THAN 50% VEGETATIVE COVER.
- THE CONSTRUCTION CONTRACTOR SHALL TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ON TO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT AS MAY BE REQUIRED.
- CONCRETE TRUCK WASHOUTS SHALL BE LOCATED PRIOR TO COMMENCEMENT OF ANY CONCRETE WORK.
- CONCRETE WASHOUTS SHALL BE LOCATED AT EACH STRUCTURE PAD, OR A CENTRAL LOCATION SERVING MULTIPLE STRUCTURE PADS.
- DISTURBANCES ON SLOPES SHALL BE MANAGED BY THE USE OF VEGETATIVE BUFFER STRIPS. STRUCTURAL BMPs (FIBER ROLLS, COMPOST ROLLS OR EROSION CONTROL MATTING, ETC.) WILL BE APPLIED FOR ADDITIONAL PROTECTION.
- PULLING AND TENSIONING SITES FOR THE 500KV TRANSMISSION LINE CONSTRUCTION WILL BE REQUIRED APPROXIMATELY EVERY 1 TO 2 MILES ALONG THE RIGHT-OF-WAY AND WILL REQUIRE APPROXIMATELY 5 ACRES AT EACH END OF THE WIRE SECTION TO ACCOMMODATE REQUIRED EQUIPMENT.
- A TABLE HAS BEEN DEVELOPED NOTING THE TYPICAL CONSTRUCTION DETAIL FOR THE MAJORITY OF THE STRUCTURE PADS.
- ACCESS ROADS SHALL MATCH ONE OF THE TYPICAL DETAILS UNLESS SPECIFICALLY NOTED.
- SEE 2005 DEG ESC MANUAL FOR BMP RATIONALE STATEMENTS.

REQUIRED EROSION AND SEDIMENT CONTROL PLAN DRAWING STANDARD NOTES:

- HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL (INCLUDING THE INSPECTOR) TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.8.C.I.(3))
- ALL PERMIT REGISTRANTS MUST IMPLEMENT THE ESCP. FAILURE TO IMPLEMENT ANY OF THE CONTROL MEASURES OR PRACTICES DESCRIBED IN THE ESCP IS A VIOLATION OF THE PERMIT. (SCHEDULE A.8.A)
- RETAIN A COPY OF THE ESCP AND ALL REVISIONS ON SITE AND MAKE IT AVAILABLE ON REQUEST TO DEG, AGENT, OR THE LOCAL MUNICIPALITY. DURING INACTIVE PERIODS OF GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS, RETAIN THE ESCP AT THE CONSTRUCTION SITE OR AT ANOTHER LOCATION. (SCHEDULE B.2.A)
- THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, UPGRADE THESE MEASURES AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. (SCHEDULE A.8.C.I.(1)(C))
- SUBMISSION OF ALL ESCP REVISIONS IS NOT REQUIRED. SUBMITTAL OF THE ESCP REVISIONS IS ONLY UNDER SPECIFIC CONDITIONS. (SCHEDULE A.12.C.II)
- PHASE CLEARING AND GRADING TO THE MAXIMUM EXTENT PRACTICAL TO PREVENT EXPOSED INACTIVE AREAS FROM BECOMING A SOURCE OF EROSION. (SCHEDULE A.8.C.II.(1)(D))
- IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES, AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. (SCHEDULE A.8.C.I.(1) & (2))
- PRESERVE EXISTING VEGETATION AND RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. (SCHEDULE A.7.B.III.(1))
- EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS. (SCHEDULE A.7.D.I AND A.8.C)
- ESTABLISH CONCRETE TRUCK AND OTHER CONCRETE EQUIPMENT WASHOUT AREAS BEFORE BEGINNING CONCRETE WORK. (SCHEDULE A.8.C.I.(6))
- APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS. (SCHEDULE A.8.C.II.(2))
- ESTABLISH MATERIAL AND WASTE STORAGE AREAS, AND OTHER NON-STORMWATER CONTROLS. (SCHEDULE A.8.C.I.(7))
- PREVENT TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS USING BMPs SUCH AS: GRAVELED (OR PAVED) EXITS AND PARKING AREAS, GRAVEL ALL UNPAVED ROADS LOCATED ON-SITE, OR USE AN EXIT TIRE WASH. THESE BMPs MUST BE IN PLACE PRIOR TO LAND-DISTURBING ACTIVITIES. (SCHEDULE A.7.D.I.(1) AND A.8.C.I.(4))
- WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER USE WATER-TIGHT TRUCKS OR DRAIN LOADS ON SITE. (SCHEDULE A.7.D.II.(3))
- USE BMPs TO PREVENT OR MINIMIZE STORMWATER EXPOSURE TO POLLUTANTS FROM SPILLS, VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE; OTHER CLEANING AND MAINTENANCE ACTIVITIES; AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, LEFT-OVER PAINTS, SOLVENTS, AND GULFS FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.E.I.(2))
- USE WATER OR A SOIL-BINDING AGENT OR OTHER DUST CONTROL TECHNIQUE AS NEEDED TO AVOID WIND-BLOWN SOIL. (SCHEDULE A.7.B.III)
- THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. EXERCISE CAUTION WHEN USING TIME-RELEASE FERTILIZERS WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.9.B.III)
- IF A STORMWATER TREATMENT SYSTEM (FOR EXAMPLE, ELECTRO-COAGULATION, FLOCCULATION, FILTRATION, ETC.) FOR SEDIMENT OR OTHER POLLUTANT REMOVAL IS EMPLOYED, SUBMIT AN OPERATION AND MAINTENANCE PLAN (INCLUDING SYSTEM SCHEMATIC, LOCATION OF SYSTEM, LOCATION OF INLET, LOCATION OF DISCHARGE, DISCHARGE DISPERSION DEVICE DESIGN, AND A SAMPLING PLAN AND FREQUENCY) BEFORE OPERATING THE TREATMENT SYSTEM. OBTAIN PLAN APPROVAL BEFORE OPERATING THE TREATMENT SYSTEM. OPERATE AND MAINTAIN THE TREATMENT SYSTEM ACCORDING TO MANUFACTURER'S SPECIFICATIONS. (SCHEDULE A.9.D)
- TEMPORARILY STABILIZE SOILS AT THE END OF THE SHIFT BEFORE HOLIDAYS AND WEEKENDS, IF NEEDED. THE REGISTRANT IS RESPONSIBLE FOR ENSURING THAT SOILS ARE STABLE DURING RAIN EVENTS AT ALL TIMES OF THE YEAR. (SCHEDULE A.7.B)
- CONSTRUCTION ACTIVITIES MUST AVOID OR MINIMIZE EXCAVATION AND CREATION OF BARE GROUND DURING WET WEATHER. (SCHEDULE A.7.A.I)
- SEDIMENT FENCE: REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT AND BEFORE FENCE REMOVAL. (SCHEDULE A.9.C.I)
- OTHER SEDIMENT BARRIERS (SUCH AS BIOBAGS): REMOVE SEDIMENT BEFORE IT REACHES TWO INCHES DEPTH ABOVE GROUND HEIGHT AND BEFORE BMP REMOVAL. (SCHEDULE A.9.C.II)
- SEDIMENT BASINS AND SEDIMENT TRAPS: REMOVE TRAPPED SEDIMENTS BEFORE DESIGN CAPACITY HAS BEEN REDUCED BY FIFTY PERCENT AND AT COMPLETION OF PROJECT. (SCHEDULE A.9.C.II.(4))
- WITHIN 24 HOURS, SIGNIFICANT SEDIMENT THAT HAS LEFT THE CONSTRUCTION SITE, MUST BE REMEDIATED. INVESTIGATE THE CAUSE OF THE SEDIMENT RELEASE AND IMPLEMENT STEPS TO PREVENT A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIMEFRAME. (SCHEDULE A.9.B.I)
- THE INTENTIONAL WASHING OF SEDIMENT INTO STORM SEWERS OR DRAINAGE WAYS MUST NOT OCCUR. VACUUMING OR DRY SWEEPING AND MATERIAL PICKUP MUST BE USED TO CLEANUP RELEASED SEDIMENTS. (SCHEDULE A.9.B.II)
- THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER. TEMPORARY SEEDING, OR OTHER METHOD SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR 30 DAYS OR MORE. (SCHEDULE A.7.F.I)
- PROVIDE TEMPORARY STABILIZATION FOR THAT PORTION OF THE SITE WHERE CONSTRUCTION ACTIVITIES CEASE FOR 14 DAYS OR MORE WITH A COVERING OF BLOWN STRAW AND A TACKIFIER, LOOSE STRAW, OR AN ADEQUATE COVERING OF COMPOST MULCH UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.7.F.II)
- THE DESIGNATED EROSION AND SEDIMENT CONTROL INSPECTOR MUST PERFORM DAILY INSPECTIONS OF THE BMPs AND DISCHARGE OUTFALLS WHEN RAINFALL AND RUNOFF OCCUR. RECORD THE INSPECTIONS AND OBSERVATIONS IN A LOG THAT IS ON SITE. (SCHEDULE B.1.B.II)
- ALL ESCP CONTROLS AND PRACTICES MUST BE INSPECTED VISUALLY ONCE TO ENSURE THAT BMPs ARE IN WORKING ORDER PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY AND MUST BE INSPECTED VISUALLY ONCE EVERY TWO (2) WEEKS DURING INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS. (SCHEDULE B.1.B.(2) & (3))
- IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION DURING PERIODS IN WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER. (SCHEDULE B.1.B.II)
- DO NOT REMOVE TEMPORARY SEDIMENT CONTROL PRACTICES UNTIL PERMANENT VEGETATION OR OTHER COVER OF EXPOSED AREAS IS ESTABLISHED. IDENTIFY THE TYPE OF VEGETATIVE SEED MIX USED. (SCHEDULE A.7.B.III)
- PROVIDE PERMANENT EROSION CONTROL MEASURES ON ALL EXPOSED AREAS. REMOVE ALL TEMPORARY EROSION CONTROL MEASURES AS EXPOSED AREAS BECOME STABILIZED, UNLESS DOING SO CONFLICTS WITH LOCAL REQUIREMENTS. PROPERLY DISPOSE OF CONSTRUCTION MATERIALS AND WASTE, INCLUDING SEDIMENT RETAINED BY TEMPORARY BMPs. (SCHEDULE A.8.C.III)

BMP MATRIX FOR CONSTRUCTION PHASES

REFER TO DEG GUIDANCE MANUAL FOR A COMPREHENSIVE LIST OF AVAILABLE BMPs.

BMPs	CLEARING & GRADING	UTILITY INSTALLATION	FINAL STABILIZATION	"WET WEATHER (OCT. 1 - MAY 31st)"	POTENTIAL DISCHARGE TO TMDL and 303(d)
EROSION PREVENTION					
PRESERVE NATURAL VEGETATION	** X	X	X	X	X
GROUND COVER		X	X	X	X
HYDRAULIC APPLICATIONS			X	X	X
PLASTIC SHEETING		X		X	X
MATTING			X	X	X
DUST CONTROL	** X	X	X	X	X
TEMPORARY/ PERMANENT SEEDING		X	X	X	X
BUFFER ZONE	** X	X	X	X	X
SEDIMENT CONTROL					
SILT FENCE (PERIMETER)	** X		X	X	X
SILT FENCE (INTERIOR)			X	X	X
STRAW WATTLES	X			X	X
FILTER BERM	X	X		X	X
INLET PROTECTION	X	X		X	X
DEWATERING	X	X		X	X
SEDIMENT TRAP	X	X		X	X
RUN OFF CONTROL					
CONSTRUCTION ENTRANCE	** X	X	X	X	X
PIPE SLOPE DRAIN	X	X	X	X	X
OUTLET PROTECTION	X	X	X	X	X
SURFACE ROUGHENING	X	X	X	X	X
CHECK DAMS	X	X	X	X	X
WATERBARS	** X	X	X	X	X
POLLUTION PREVENTION					
PROPER SIGNAGE	** X	X	X	X	X
HAZ WASTE MGMT	** X	X	X	X	X
SPILL KIT ON-SITE	** X	X	X	X	X
CONCRETE WASHOUT AREA		X	X	X	X
** SIGNIFIES BMP THAT WILL BE INSTALLED PRIOR TO ANY GROUND DISTURBING ACTIVITY.					
SCHEDULE:	YEARS 1-2	YEARS 1-3	YEARS 2-3	YEARS 1-3	YEARS 1-3

PRELIMINARY

INITIAL
HAND WRITTEN INITIALS OF
EROSION CONTROL PLAN DESIGNER

PERMITTEE'S SITE INSPECTOR:

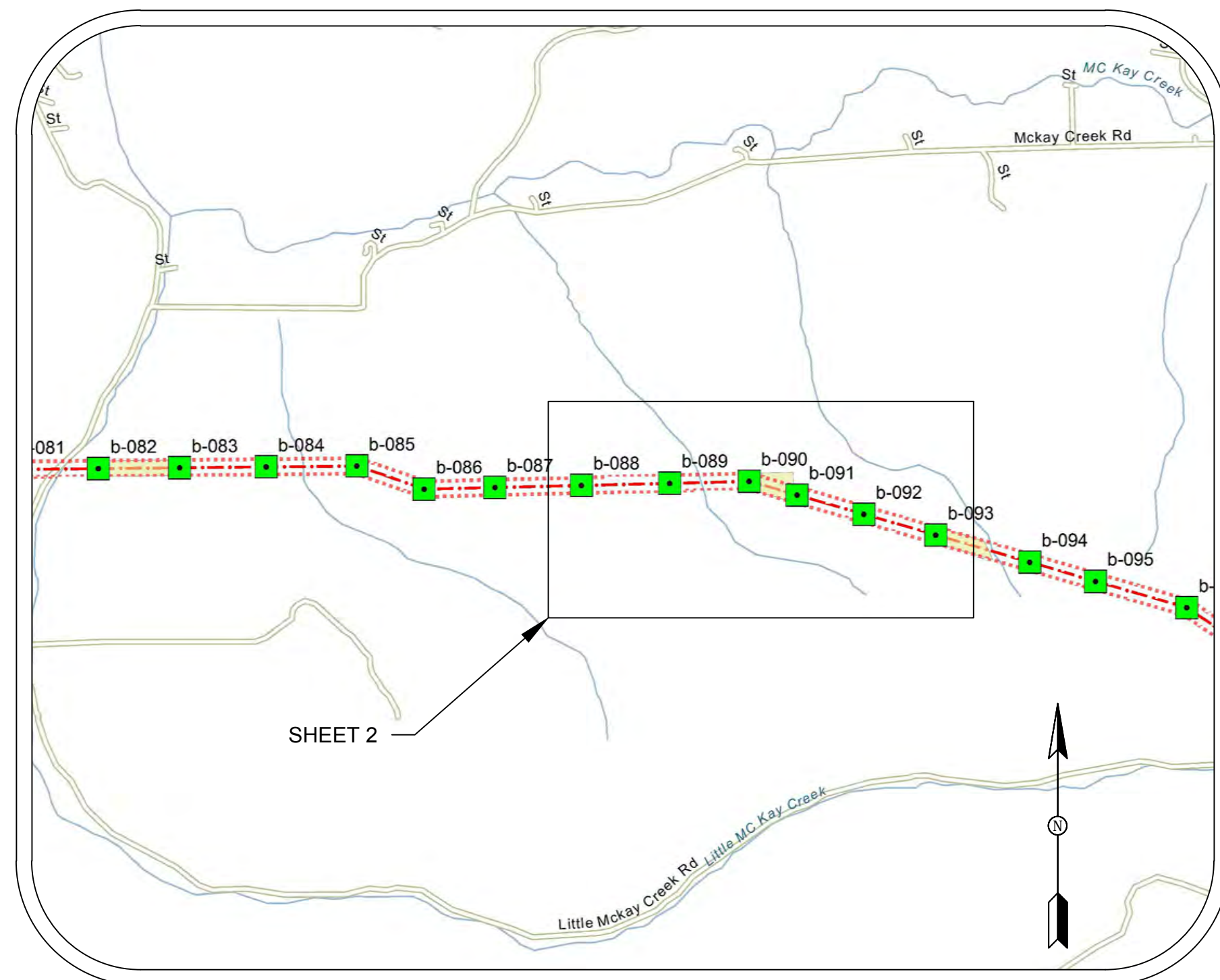
COMPANY/AGENCY: _____
PHONE: _____
FAX: _____
E-MAIL: _____
DESCRIPTION OF EXPERIENCE: _____

(MUST HAVE ADEQUATE CERTIFICATION OR TRAINING IN EROSION CONTROL OR AT LEAST 200HRS ON JOB EXPERIENCE SPECIFIC TO EROSION CONTROL.)

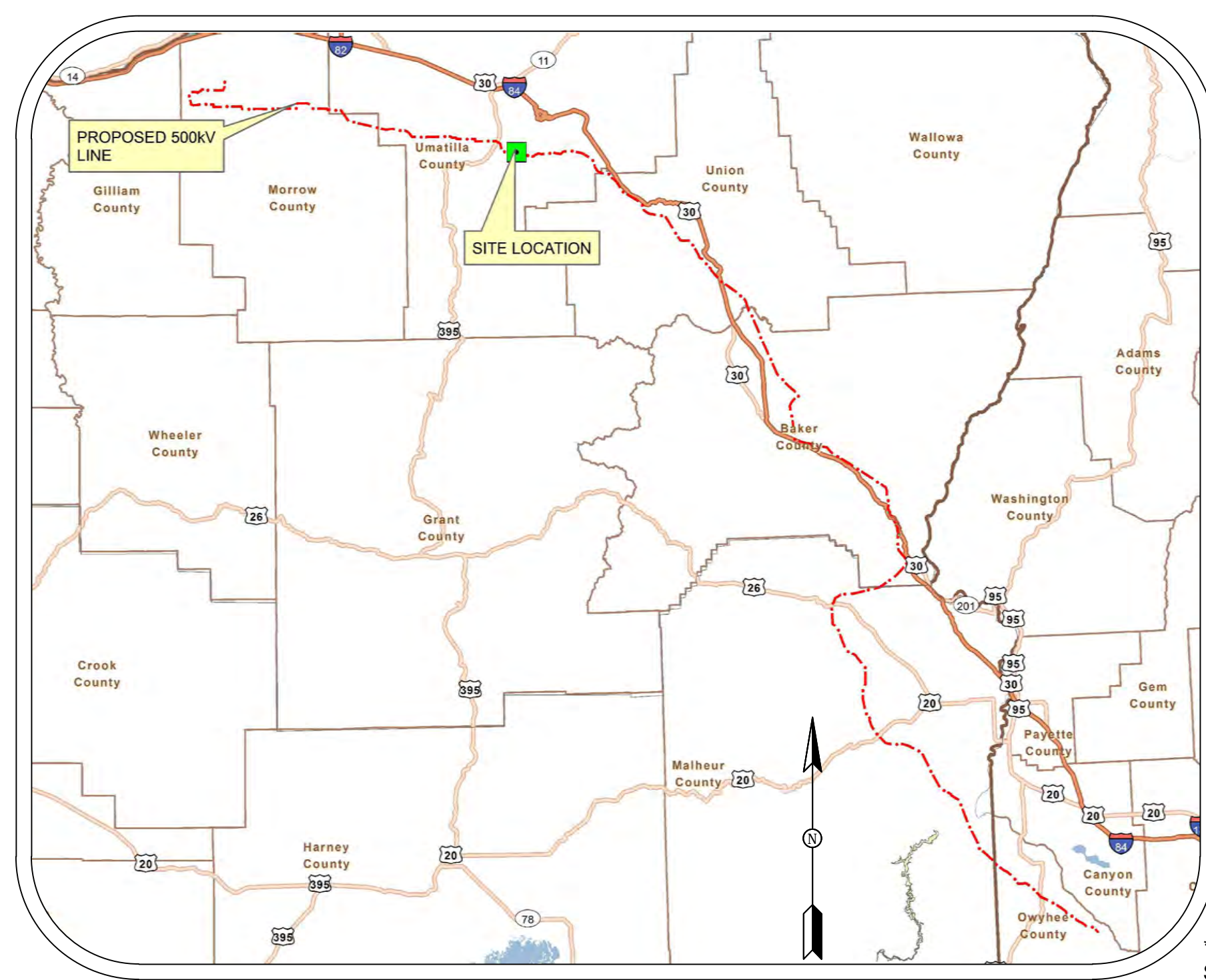
INSPECTION FREQUENCY:

	SITE CONDITION	MINIMUM FREQUENCY
1	ACTIVE PERIOD	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT, IS OCCURRING. EVERY 2 WEEKS IN DRY CONDITIONS.
2	PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3	INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS.	ONCE EVERY TWO (2) WEEKS AND AFTER STORMS TOTALING 0.25 INCH OR MORE.
4	PERIODS DURING WHICH THE SITE IS ACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.

* HOLD A PRE-CON MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE EC INSPECTOR.
* ALL INSPECTIONS MUST BE MADE IN ACCORDANCE WITH DEG 1200 C PERMIT REQUIREMENTS.
* INSPECTION LOGS MUST BE KEPT IN ACCORDANCE WITH DEG 1200 C PERMIT REQUIREMENTS.
* CHANGES TO THE APPROVED ESC PLAN MUST BE SUBMITTED TO DEG IN THE FORM OF AN ACTION PLAN.



SITE MAP NOT TO SCALE



VICINITY MAP NOT TO SCALE

PROJECT LOCATION:

THE PROJECT CORRIDOR BEGINS NEAR BOARDMAN IN MORROW COUNTY, OREGON AND ENDS AT HEMINGWAY SUBSTATION, LOCATED IN OWYHEE COUNTY, IDAHO.

ATTENTION EXCAVATORS:

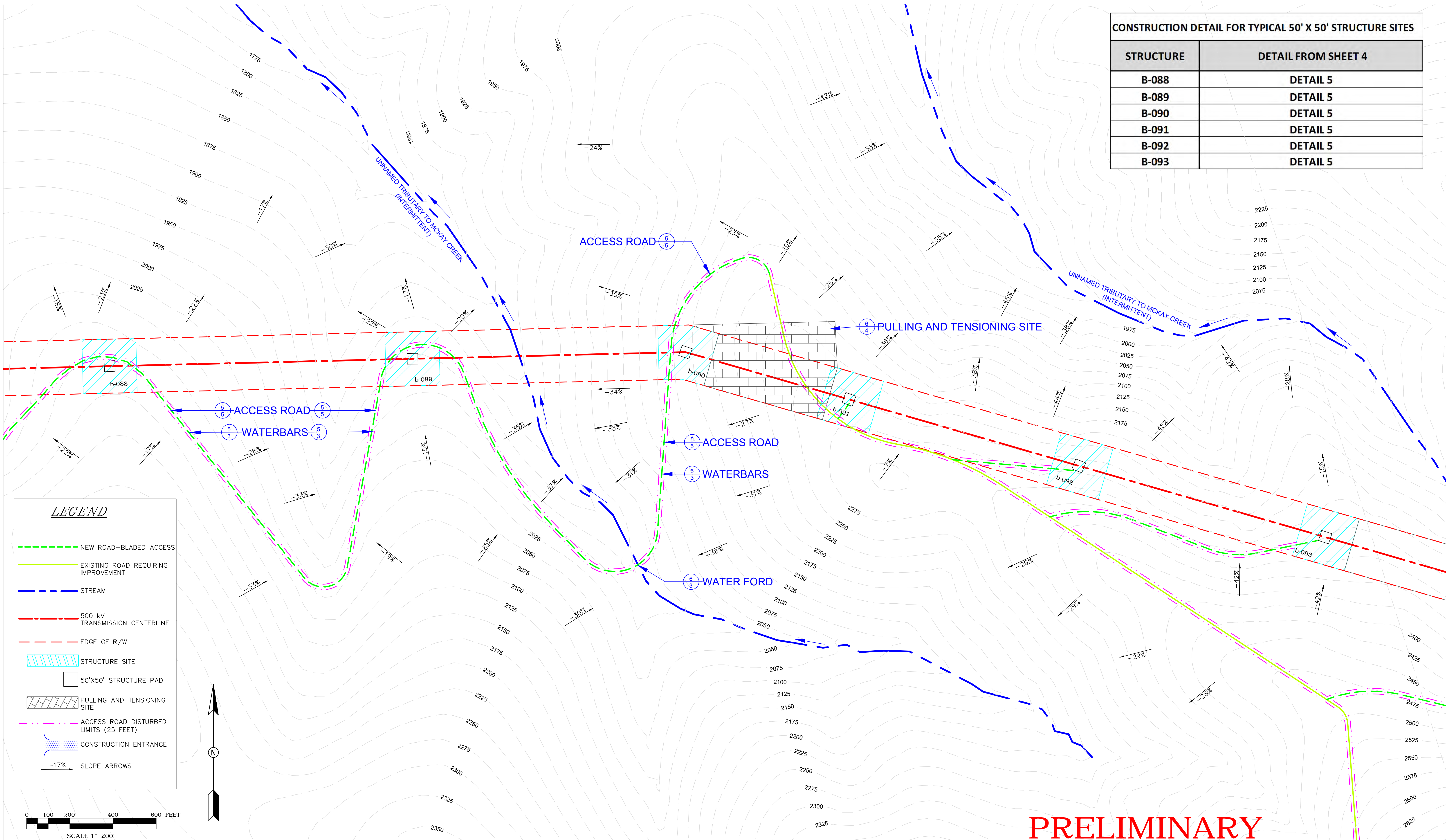
OREGON LAW REQUIRES YOU TO FOLLOW RULES ADOPTED BY THE OREGON UTILITY NOTIFICATION CENTER. THOSE RULES ARE SET FORTH IN OAR 952-001-0010 THROUGH OAR 952-001-0090. YOU MAY OBTAIN COPIES OF THESE RULES FROM THE CENTER BY CALLING 503-232-1987. IF YOU HAVE ANY QUESTIONS ABOUT THE RULES, YOU MAY CONTACT THE CENTER. YOU MUST NOTIFY THE CENTER AT LEAST TWO BUSINESS DAYS, BEFORE COMMENCING AN EXCAVATION. CALL 503-246-6699.

REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR	REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR	REFERENCES	DATE	PROJECT INFORMATION	TRANSMISSION DEPARTMENT
0	B2H EROSION AND SEDIMENT CONTROL PLANS - DRAFT	10-10-11	DKR	KTM	CAH							DESIGNER: KTM	10-10-11	BOARDMAN TO HEMINGWAY 500KV LINE #XXX EROSION AND SEDIMENT CONTROL PLANS	DRAWING #: TITLE SHEET VAULT #: 23D-00000-00 SHEET #: 1 OF 5
1	REVISE	11-22-11	DKR	KTM	KTM							DRAFTER: CAH	10-10-11		
2	REVISED FOR DRAFT 1200-C APPLICATION	3-30-12			KHK							C.E.G.: DKR	10-10-11		
												SCALE:	NTS HORIZ. VERT.		

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CONSTRUCTION DETAIL FOR TYPICAL 50' X 50' STRUCTURE SITES

STRUCTURE	DETAIL FROM SHEET 4
B-088	DETAIL 5
B-089	DETAIL 5
B-090	DETAIL 5
B-091	DETAIL 5
B-092	DETAIL 5
B-093	DETAIL 5



LEGEND

- NEW ROAD—BLADED ACCESS
- EXISTING ROAD REQUIRING IMPROVEMENT
- STREAM
- 500 kV TRANSMISSION CENTERLINE
- EDGE OF R/W
- STRUCTURE SITE
- 50'X50' STRUCTURE PAD
- PULLING AND TENSIONING SITE
- ACCESS ROAD DISTURBED LIMITS (25 FEET)
- CONSTRUCTION ENTRANCE
- 17% SLOPE ARROWS

PRELIMINARY

	REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR	REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR	REV.	REFERENCES	DATE	PROJECT INFORMATION	TRANSMISSION DEPARTMENT
	0	B2H EROSION AND SEDIMENT CONTROL PLANS - DRAFT	10-10-11	DKR	KTM	CAH			DESIGNER: KTM	10-10-11					BOARDMAN TO HEMINGWAY	500kV LINE #XXX	EROSION AND SEDIMENT CONTROL PLANS
1	REVISE	11-22-11	DKR	KTM	KTM			C.E.G. DKR	10-10-11					SCALE: 1" = 200' HORZ.			Vault #: 23D-00000-00
																	SHEET #: 2 OF 5

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Nov 20 2011 11:05am S:\ALL PROJECTS\B2H B2H 500V Line\B2HPS 1\B2H\DWG\B2H 1\B2H11111.dwg

SEEDING FOR PERMANENT STABILIZATION SHALL BE PERFORMED IN ALL AREAS WHERE LAND DISTURBANCE HAS OCCURRED.

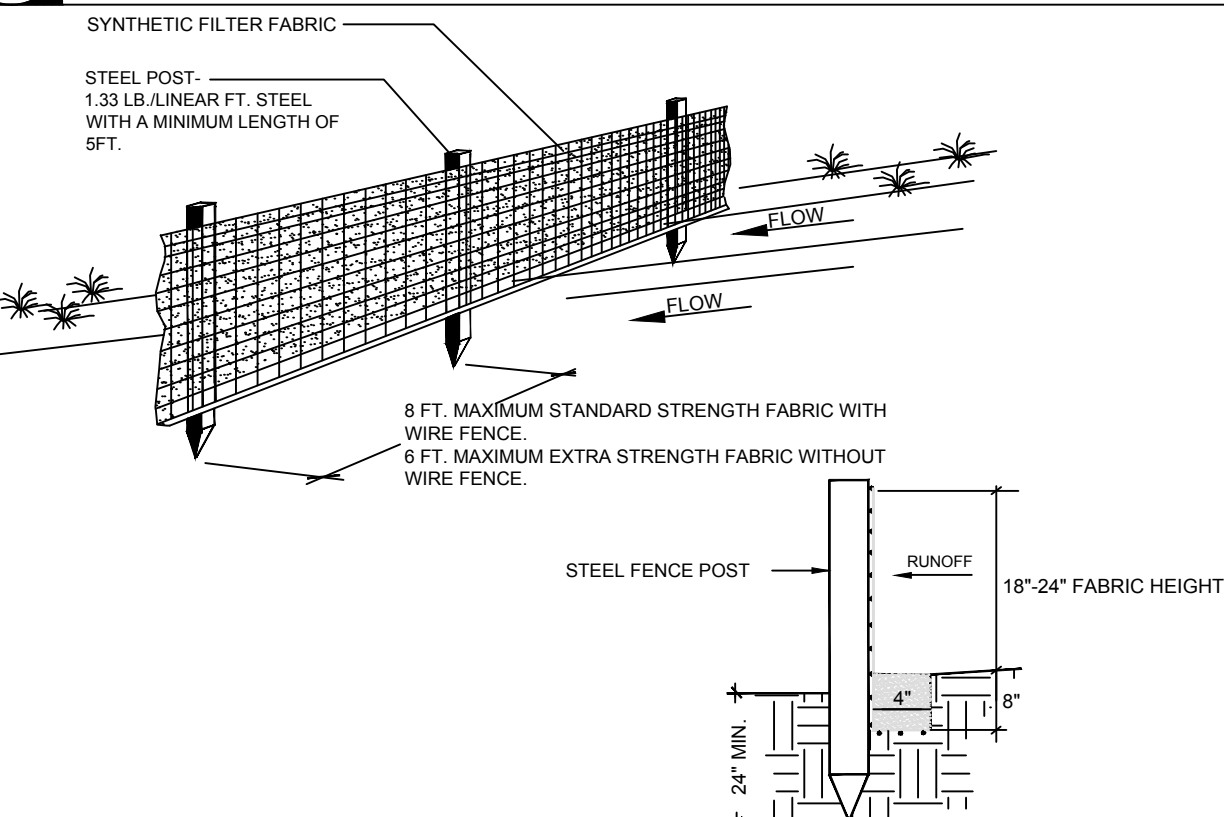
- REESTABLISH VEGETATIVE COVER**
- IF TOPSOIL IS REMOVED CARE WILL BE TAKEN TO ENSURE IT IS NOT MIXED WITH THE UNDERLYING SUBSOIL. TOPSOIL SHALL BE STORED IN A SEPARATE STOCKPILE. IT WILL BE RETURNED TO THE AREA IT WAS TAKEN FROM AND WILL NOT BE SPREAD IN ADJACENT AREAS.
 - SEED MIX WILL BE DETERMINED BY THE BUREAU OF LAND MANAGEMENT, US FOREST SERVICE, OR PRIVATE LAND OWNER.
 - SEEDING WILL OCCUR IN OCTOBER, NOVEMBER, FEBRUARY OR MARCH AND WILL BE EVALUATED FOR SUCCESS OF ESTABLISHMENT AFTER TWO GROWING SEASONS.

- BASIC DESIGN AND CONSTRUCTION:**
- SPREAD 4" OF TOPSOIL OR COMPOST OVER THE SITE BEFORE SEEDING OR PLANTING.
 - FERTILIZE ACCORDING TO SOIL TEST RECOMMENDATIONS.
 - MULCH WITH STRAW OR OTHER MATTING.
 - WATER AS NEEDED TO KEEP SOIL MOIST.
 - USE SEED MIX RECOMMENDATIONS FROM LOCAL SUPPLIERS. SEED MIXES SHOULD BE BASED UPON THE TIME OF YEAR SEEDING IS TAKING PLACE.
 - USE LOW MAINTENANCE, NATIVE GRASSES. IF PLANTING IS DONE IN JULY OR AUGUST, IRRIGATION WILL BE NECESSARY.
 - SHRUBS SHOULD BE PLANTED 2'-5' APART; TREES 6'-10' FOR WOODED AREAS.

DESIGN CONSIDERATIONS:
MULCH SHOULD BE APPLIED IN AREAS WHICH CANNOT BE SEEDED DUE TO THE SEASON OR OTHER ISSUES. IT CAN ALSO BE APPLIED TO NEWLY SEEDED AREAS TO PROVIDE PROTECTION AND COVER UNTIL SEED IS ESTABLISHED OR TO EXPOSED SOILS THAT NEED IMMEDIATE COVER AND PROTECTION. SUITABLE ORGANIC MATERIALS (E.G. STRAW, WOOD CHIPS, SHREDDED BARK, COMPOST) WILL BE CHOSEN BASED ON LOCAL AVAILABILITY AND EFFECTIVENESS. USE COMPOSTABLE BLANKETS ON STEEP SLOPES. THE MATERIAL SHOULD BE DRY AND FREE OF WEEDS AND SEEDS. IN DRY WEATHER THE MULCH MAY NEED TO BE ANCHORED WITH NETTING OR A FIBER AND TACKIFIER TO PREVENT IT FROM BLOWING AWAY.

- MAINTENANCE:**
- FERTILIZE AND WATER AS RECOMMENDED BY SUPPLIER.
 - RE-SEED AREAS WHERE ADEQUATE COVER HAS NOT BEEN ESTABLISHED.
 - MULCHED AREAS SHOULD BE CHECKED PERIODICALLY FOR MOVEMENT AND COVERAGE.
 - CONTRACTOR IS TO HAVE MATERIALS STORED ON HAND FOR RAPID RESPONSE TO EROSION CONTROL EMERGENCIES WITHOUT SUPPLY PROCUREMENT DELAYS.

1/3 SEEDING AND STABILIZATION



- SILT FENCE CONSTRUCTION SPECIFICATIONS:**
- SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
 - SILT FENCE DRAINAGE AREA OF 1/4 ACRE OR LESS PER 100 LF.
 - SILT FENCE WITH ROCK OUTLET SHALL BE APPLICABLE FOR DRAINAGE AREAS OF 1/2 ACRE OR LESS.
 - WIRE MESH REINFORCEMENT SHALL CONSIST OF 1/4 GAUGE WIRE X" SPACING.
 - SYNTHETIC FILTER FABRIC MIN. REQUIREMENTS:
 - TENSILE STRENGTH - 30 LBS
 - PERMEABILITY - 0.05 SEC-1
 - APPEARANT GRADING SIZE - 30 US STD. SIEVE
 - ULTRAVIOLET STABILITY - 70%
 - FILTER FABRIC SHALL BE FASTENED TO THE UP-SLOPE SIDE OF THE FENCE POSTS, SUPPORTED BY WIRE MESH. EXTEND WIRE MESH TO THE BOTTOM OF THE TRENCH. WIRE OR PLASTIC TIES SHOULD BE USED TO SECURE THE FABRIC AND WIRE MESH TO THE FENCE POSTS.
 - DO NOT ATTACH FILTER FABRIC TO EXISTING TREES.
- MAINTENANCE NOTES:**
- INSPECT SILT FENCES AS PER INSPECTION FREQUENCY TABLE. MAKE ANY REPAIRS REQUIRED IMMEDIATELY.
 - SHOULD THE FABRIC OF THE SILT FENCE COLLAPSE, TEAR, DECOMPOSE OR BECOME INEFFECTIVE, REPLACE IT PROMPTLY.
 - REMOVE TRAPPED SEDIMENT BEFORE IT REACHES ONE THIRD OF THE ABOVE GROUND FENCE HEIGHT. TAKE CARE TO AVOID UNDERMINING THE FENCE DURING CLEANOUT.
 - ONCE THE DRAINAGE AREA HAS BECOME PERMANENTLY STABILIZED, ALL THE FENCE MATERIALS, AND ANY SEDIMENT DEPOSITS ARE TO BE REMOVED. THE DISTURBED AREA SHALL THEN BE GRADED SMOOTH AND PROPERLY SEEDED AND MULCHED.

2/3 SILT FENCE

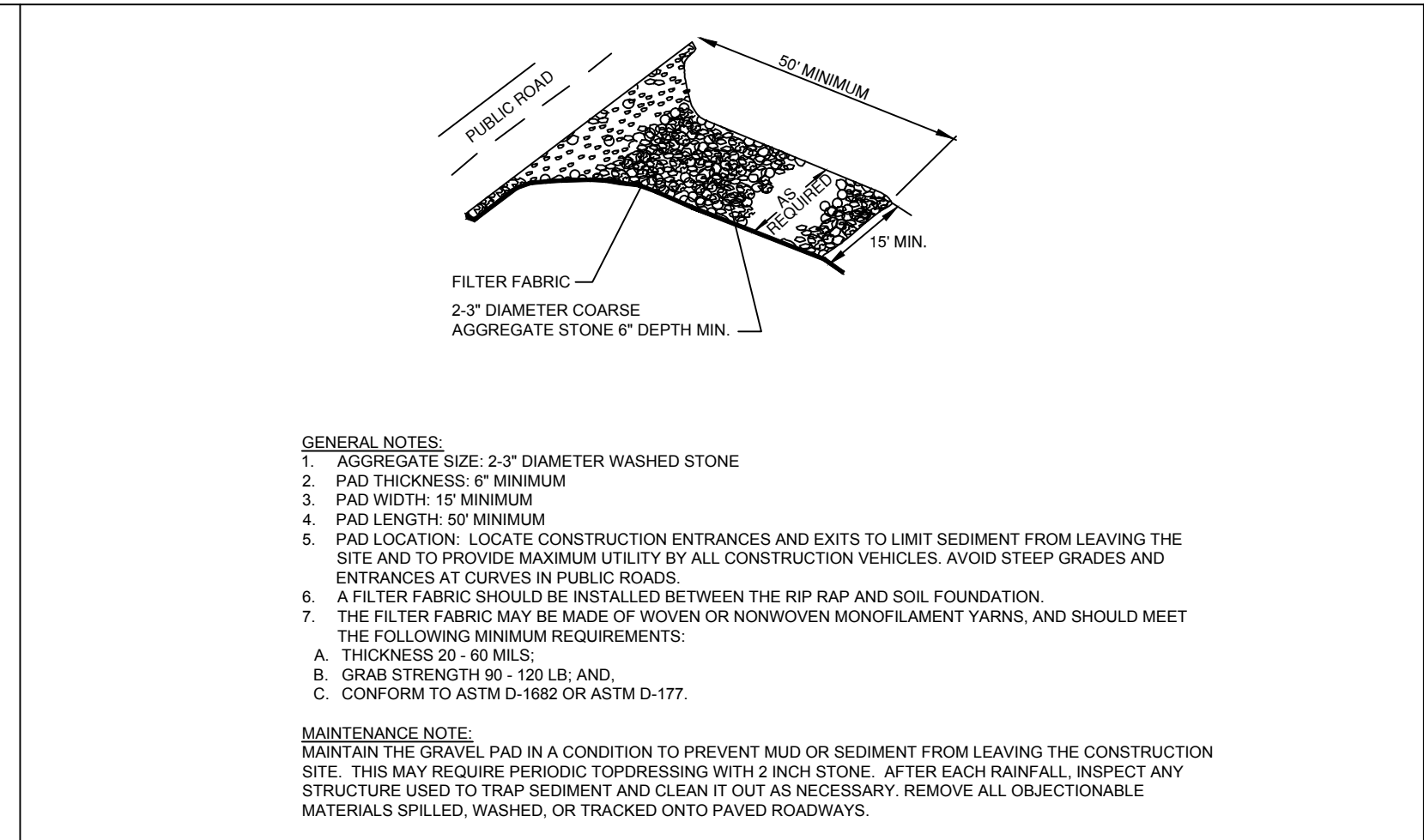
DESCRIPTION:
VEGETATED BUFFER STRIPS (VEGETATED FILTER STRIPS, FILTER STRIPS, AND GRASSED FILTERS) ARE VEGETATED SURFACES THAT ARE DESIGNED TO TREAT SHEET FLOW FROM ADJACENT SURFACES. FILTER STRIPS FUNCTION BY SLOWING RUNOFF VELOCITIES AND ALLOWING SEDIMENT AND OTHER POLLUTANTS (E.G., TOTAL AND DISSOLVED METALS) TO SETTLE AND PARTIALLY INFILTRATE INTO UNDERLYING SOILS. WITH PROPER DESIGN AND MAINTENANCE, FILTER STRIPS CAN PROVIDE RELATIVELY HIGH POLLUTANT REMOVAL.

- DESIGN REQUIREMENTS:**
- THE MINIMUM WIDTH SHALL BE 50 FEET WITH SLOPES OF 1:3, WITH ADDITIONAL WIDTH AND/OR CONTROLS AS NEEDED TO REDUCE AND CONTAIN EROSION AND SEDIMENTATION ON STEEPER SLOPES.
 - NEAR TURBIDITY TMDL AND 303(D) LISTED WATERBODIES, BUFFERS SHALL BE 50 FEET PLUS 25 FEET PER A DEGREE OF SLOPE WHERE UNDISTURBED NATURAL BUFFER IS LESS THAN 50 FEET OR INFEASIBLE. SUPPLEMENT WITH ADDITIONAL EROSION AND SEDIMENT CONTROLS SUFFICIENT TO ACHIEVE SEDIMENT LOAD REDUCTION EQUIVALENT TO A 50-FOOT BUFFER.
 - ALONG WATERBODIES THE WIDTH IS TO BE NO LESS THAN 75 FEET IN WIDTH.
 - THE WATER FLOW THROUGH THE BUFFER IS TO REMAIN AS UNIFORM SHEET FLOW.
 - THE AREA USED AS THE VEGETATIVE FILTER MUST BE DELINEATED PRIOR TO CLEARING AND GRUBBING.
 - NO VEHICULAR PARKING OR DRIVING AND NO STORAGE OF ANY SUPPLIES IN THE VEGETATIVE BUFFER IS ALLOWED.

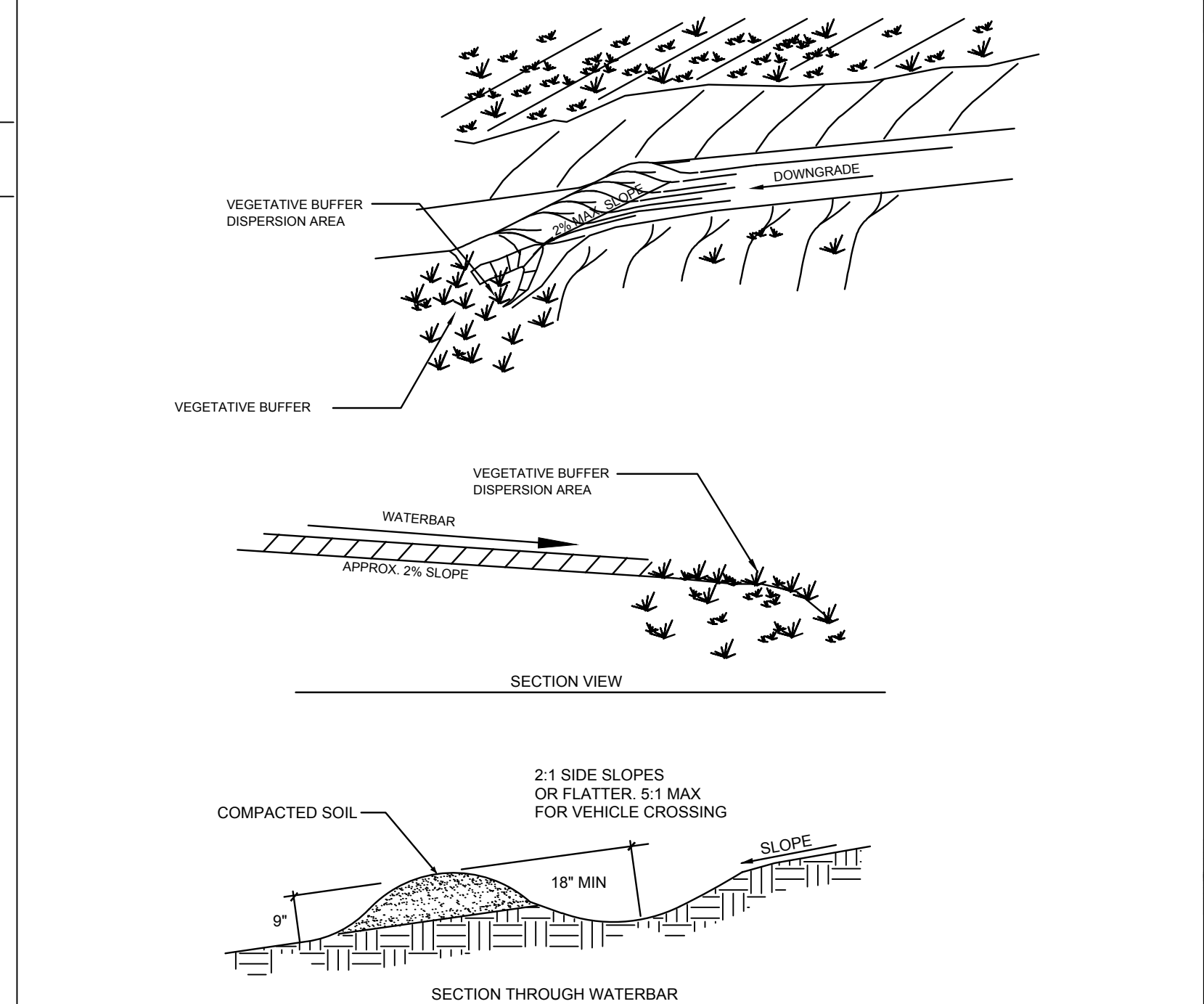
- MAINTENANCE:**
- REGULAR INSPECTIONS ARE NECESSARY TO ENSURE UNIFORM SHEET FLOW. MINIMIZE ANY DEVELOPMENT OF CHANNELS.
 - PERIODIC REGRADING AND SEDIMENT REMOVAL MAY BE NECESSARY.
 - PLANT DENSITY MAY BE ENCOURAGED BY FERTILIZING AND PERIODIC WEEDING.
 - RESEED AS NECESSARY.

GENERAL NOTES:

- STRUCTURAL BMPs WILL BE INSTALLED IN ANY LOCATION WITH GROUND DISTURBANCE WITHIN 50 FEET OF A WATER BODY.
- STRUCTURAL BMPs WILL BE INSTALLED AT GROUND DISTURBANCE LOCATIONS WITHIN 75 FEET OF A WATER BODY IF THE AREA BELOW THE DISTURBANCE IS SLOPED STEEPER THAN 15% OR CONTAINS LESS THAN 50% VEGETATIVE COVER.



4/3 TEMPORARY CONSTRUCTION ENTRANCE

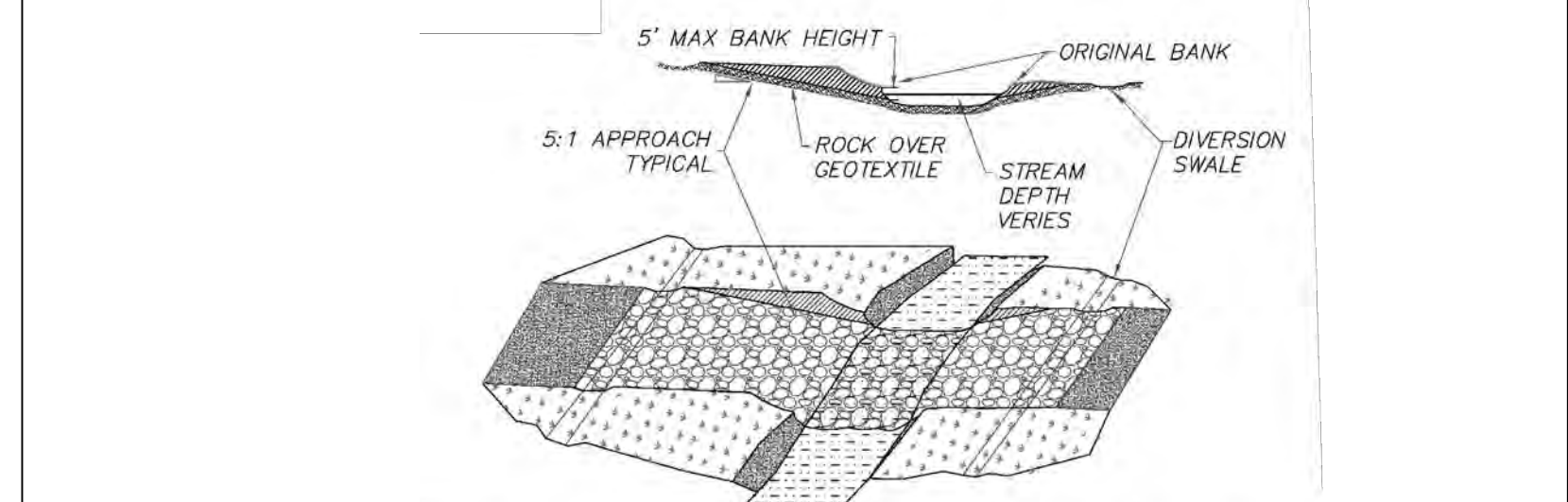


INSTALLATION FREQUENCY

SLOPE (%)	SPACING (FT)
<5%	125
5 TO 10	100
10 TO 20	75
20 TO 35	60
>35	25

NOTE: IF AN ADEQUATE VEGETATIVE BUFFER IS UNAVAILABLE, AN ALTERNATIVE DISPERSION BMP SHALL BE IMPLEMENTED.

5/3 WATERBAR

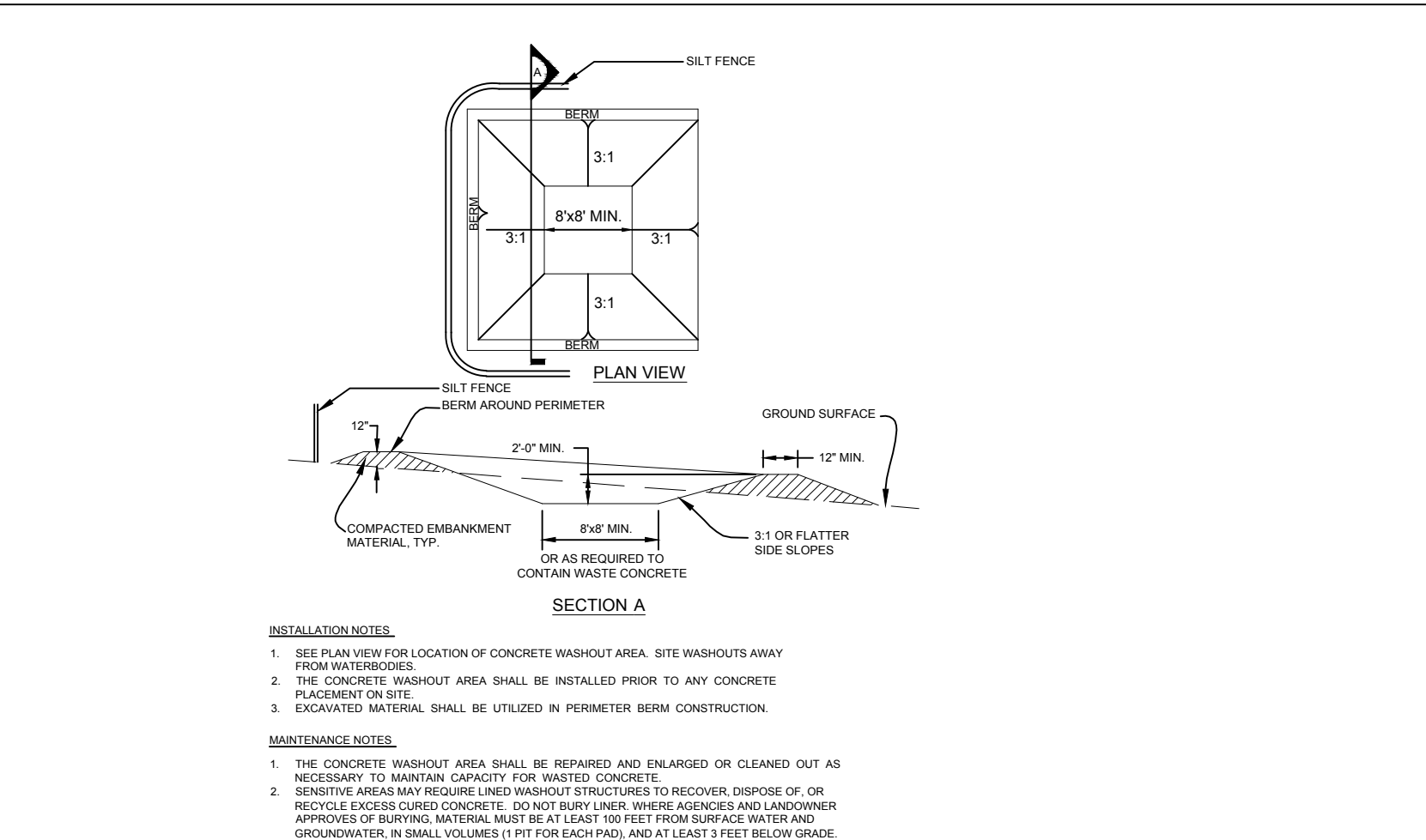


6/3 WATER FORD

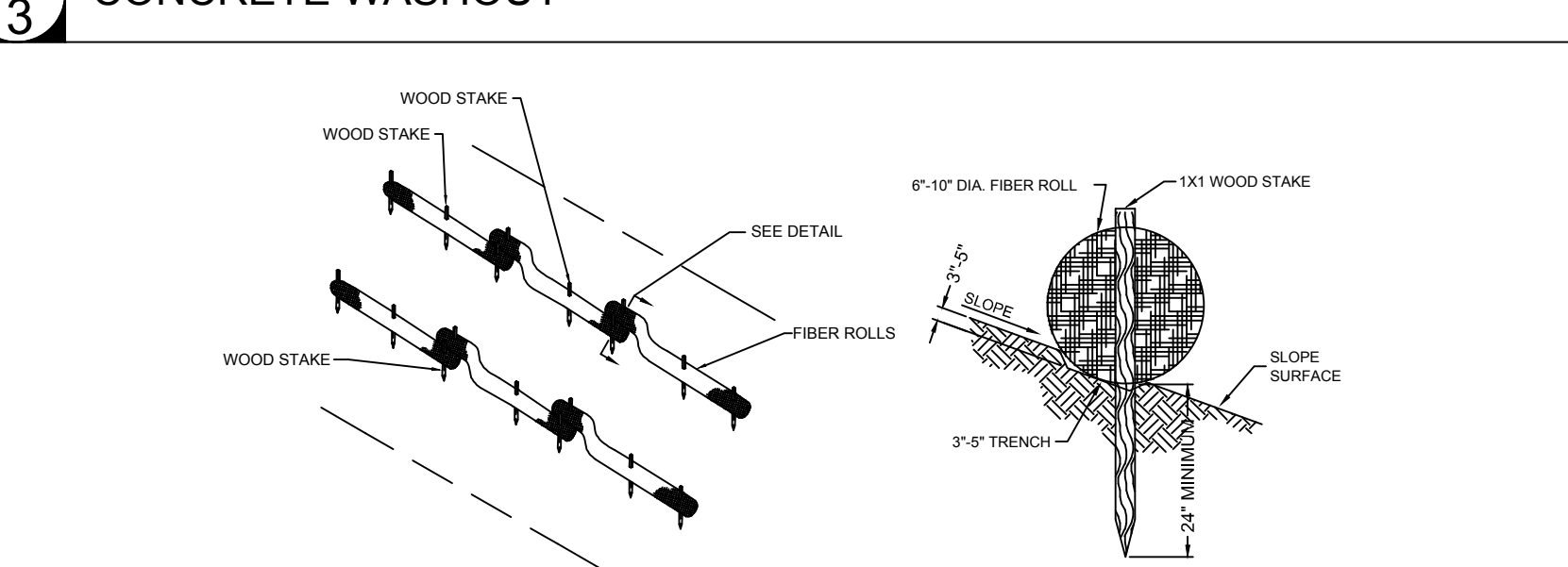
3/3 VEGETATIVE BUFFER

REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR
0	B2H EROSION AND SEDIMENT CONTROL PLANS - DRAFT	10-10-11	DKR	KTM	CAH
1	REVISE	11-22-11	DKR	KTM	KTM

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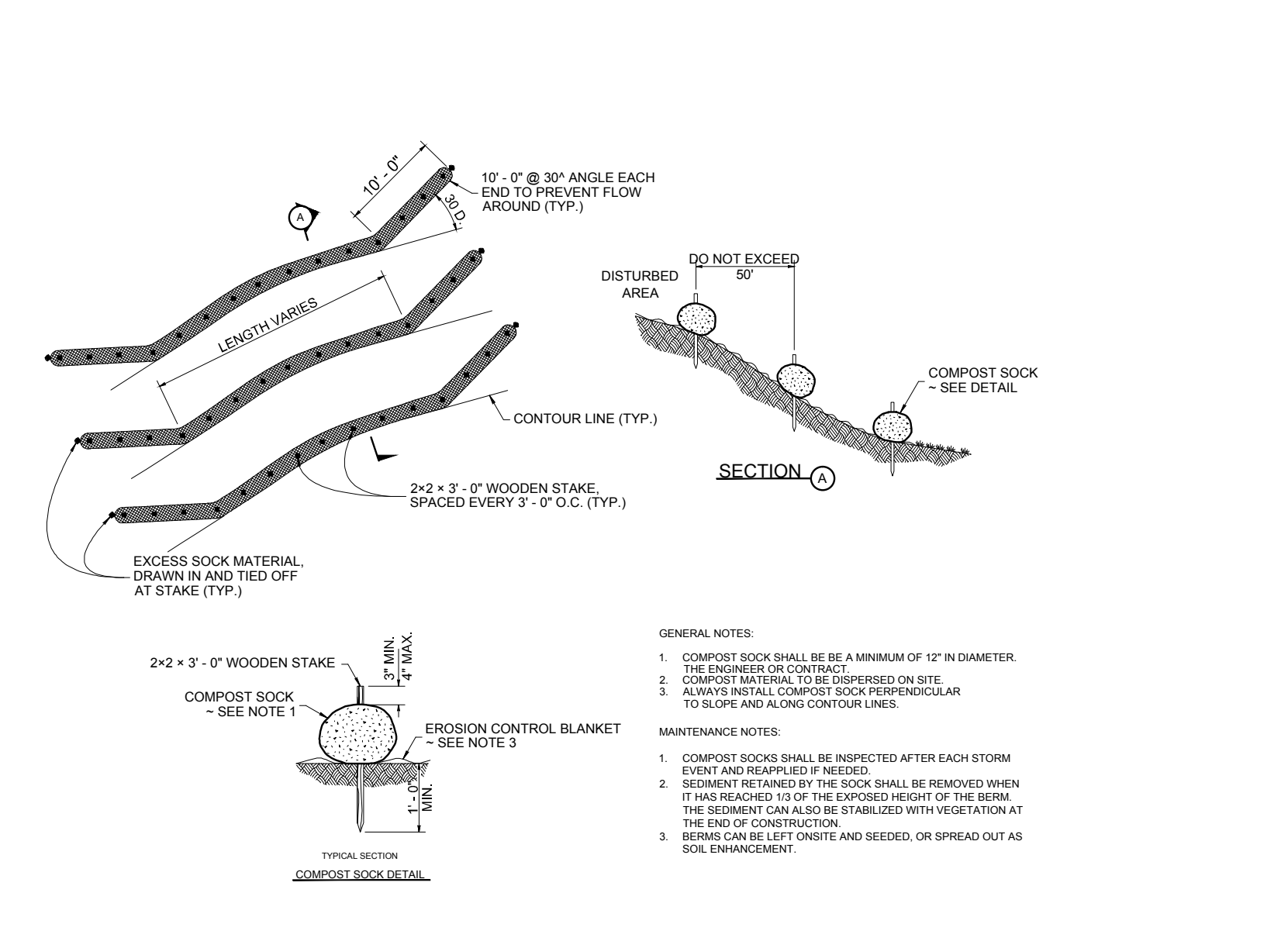


7/3 CONCRETE WASHOUT



- INSTALLATION**
- PREPARE THE SLOPE BEFORE THE INSTALLATION PROCEDURE IS STARTED.
 - SHALLOW GULLIES SHOULD BE SMOOTHED AS WORK PROGRESSES.
 - DIG SMALL TRENCHES ACROSS THE SLOPE ON CONTOUR. TO PLACE ROLLS IN THE TRENCH SHOULD BE DEEP ENOUGH TO ACCOMMODATE HALF THE THICKNESS OF THE ROLL. WHEN THE SOIL IS LOOSE AND UNCOMPACTED, THE TRENCH SHOULD BE DEEP ENOUGH TO BURY THE ROLL 1/3 OF ITS THICKNESS BECAUSE THE GROUND WILL SETTLE.
 - IT IS CRITICAL THAT ROLLS ARE INSTALLED PERPENDICULAR TO WATER MOVEMENT, AND PARALLEL TO THE SLOPE CONTOUR.
 - START BUILDING TRENCHES AND INSTALLING ROLLS FROM THE BOTTOM OF THE SLOPE AND WORK UP.
 - CONSTRUCT TRENCHES AT CONTOUR INTERVALS 20-30 FEET (8-10 M) APART DEPENDING ON THE STEEPNESS OF THE SLOPE. THE STEEPER THE SLOPE, THE CLOSER TOGETHER THE TRENCHES SHOULD BE.
 - LAY THE ROLL ALONG THE TRENCHES FITTING IT SNUGLY AGAINST THE SOIL. MAKE SURE NO GAPS EXIST BETWEEN THE ROLL AND THE STRAW MATTING.
 - USE A STRAIGHT BAR TO DRIVE HOLES THROUGH THE ROLL AND INTO THE SOIL FOR THE WILLOW OR WOODEN STAKES.
 - DRIVE THE STAKE THROUGH THE PREPARED HOLE AND INTO THE SOIL. LEAVE ONLY 1 OR 2 INCHES (25 OR 51 MM) OF THE STAKE EXPOSED ABOVE ROLL.
 - INSTALL STAKES AT LEAST EVERY 4 FEET (1.2 M) APART ALONG THE LENGTH OF THE MATTING. ADDITIONAL STAKES MAY BE DRIVEN ON THE DOWN-SLOPE SIDE OF THE TRENCHES ON HIGHLY EROSION OR VERY STEEP SLOPES.
- INSPECTION AND MAINTENANCE**
- INSPECT AS PER FREQUENCY TABLE ON SHEET 1. MAKE SURE THE ROLLS ARE IN CONTACT WITH THE SOIL.
 - REPAIR ANY ROLLS OR GULLIES PROMPTLY.
 - RESEED OR REPLANT VEGETATION IF NECESSARY UNTIL THE SLOPE IS STABILIZED.

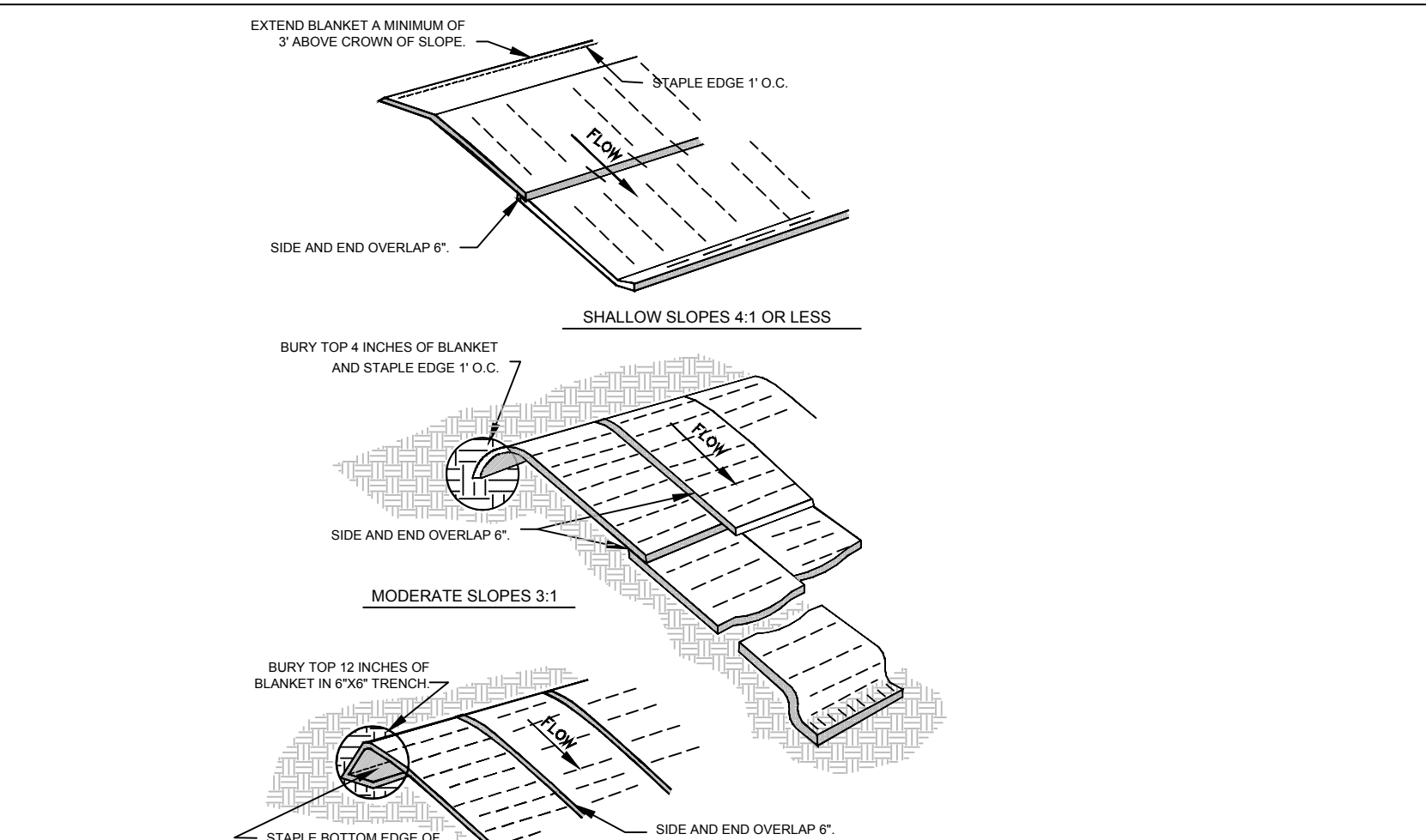
8/3 FIBER ROLLS



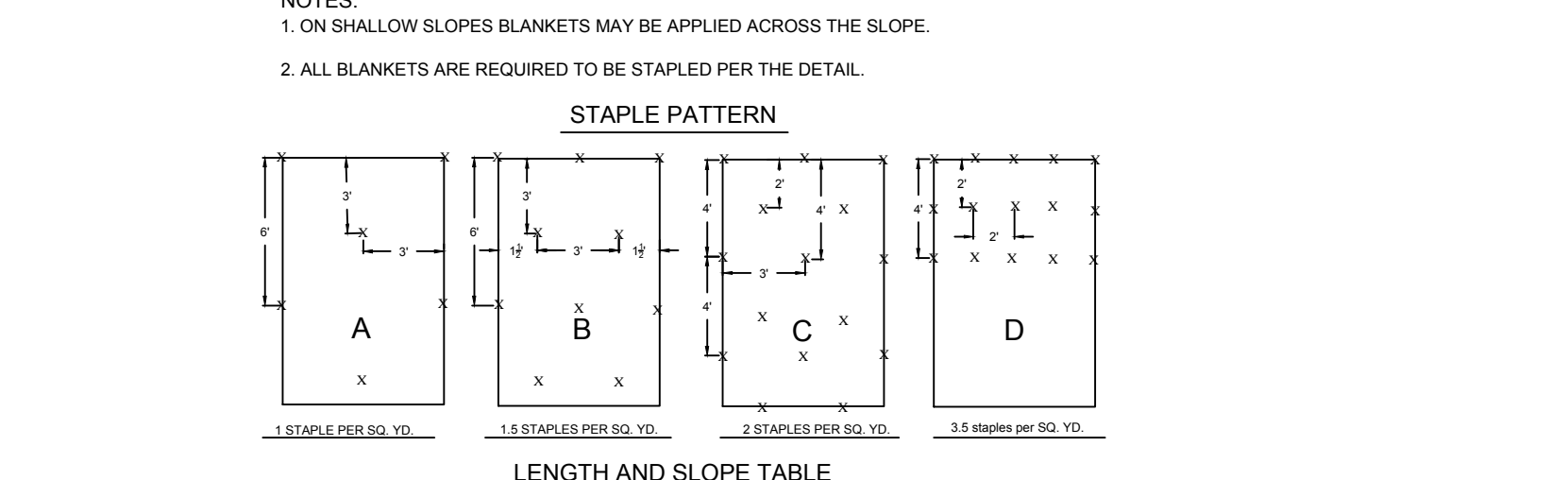
9/3 COMPOST ROLLS

REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR
0	B2H EROSION AND SEDIMENT CONTROL PLANS - DRAFT	10-10-11	DKR	KTM	CAH
1	REVISE	11-22-11	DKR	KTM	KTM

PRELIMINARY



10/3 EROSION CONTROL MATTING

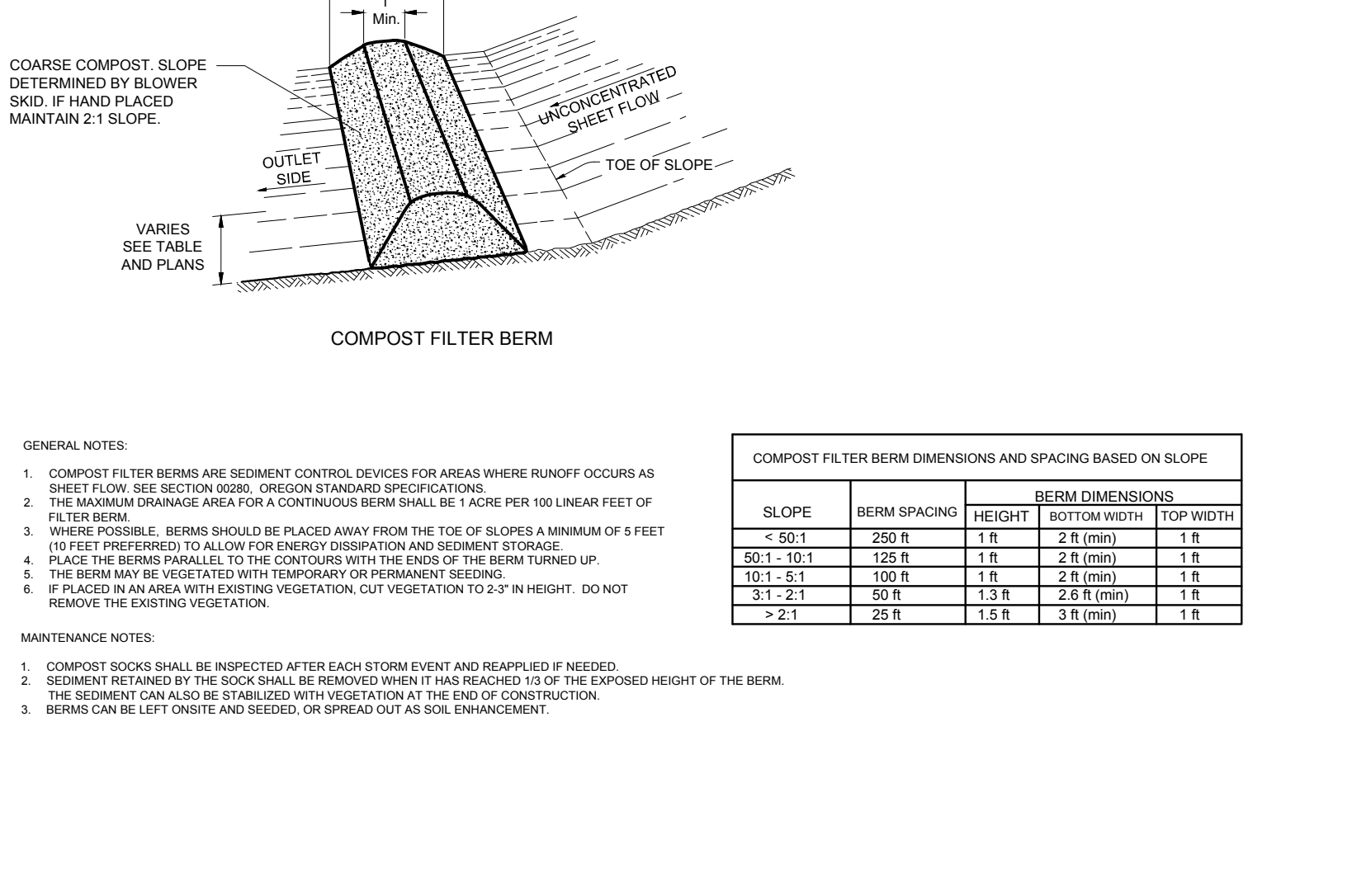


COMPOST FILTER BERM DIMENSIONS AND SPACING BASED ON SLOPE

SLOPE	BERM SPACING	BERM DIMENSIONS		
		HEIGHT	BOTTOM WIDTH	TOP WIDTH
<5%	25 R	1 R	2 R (MIN)	1 R
5-10	15 R	1 R	2 R (MIN)	1 R
10-15	10 R	1 R	2 R (MIN)	1 R
15-20	5 R	1.5 R	2.5 R (MIN)	1 R
>20	25 R	1.5 R	3 R (MIN)	1 R

11/3 COMPOST BERM

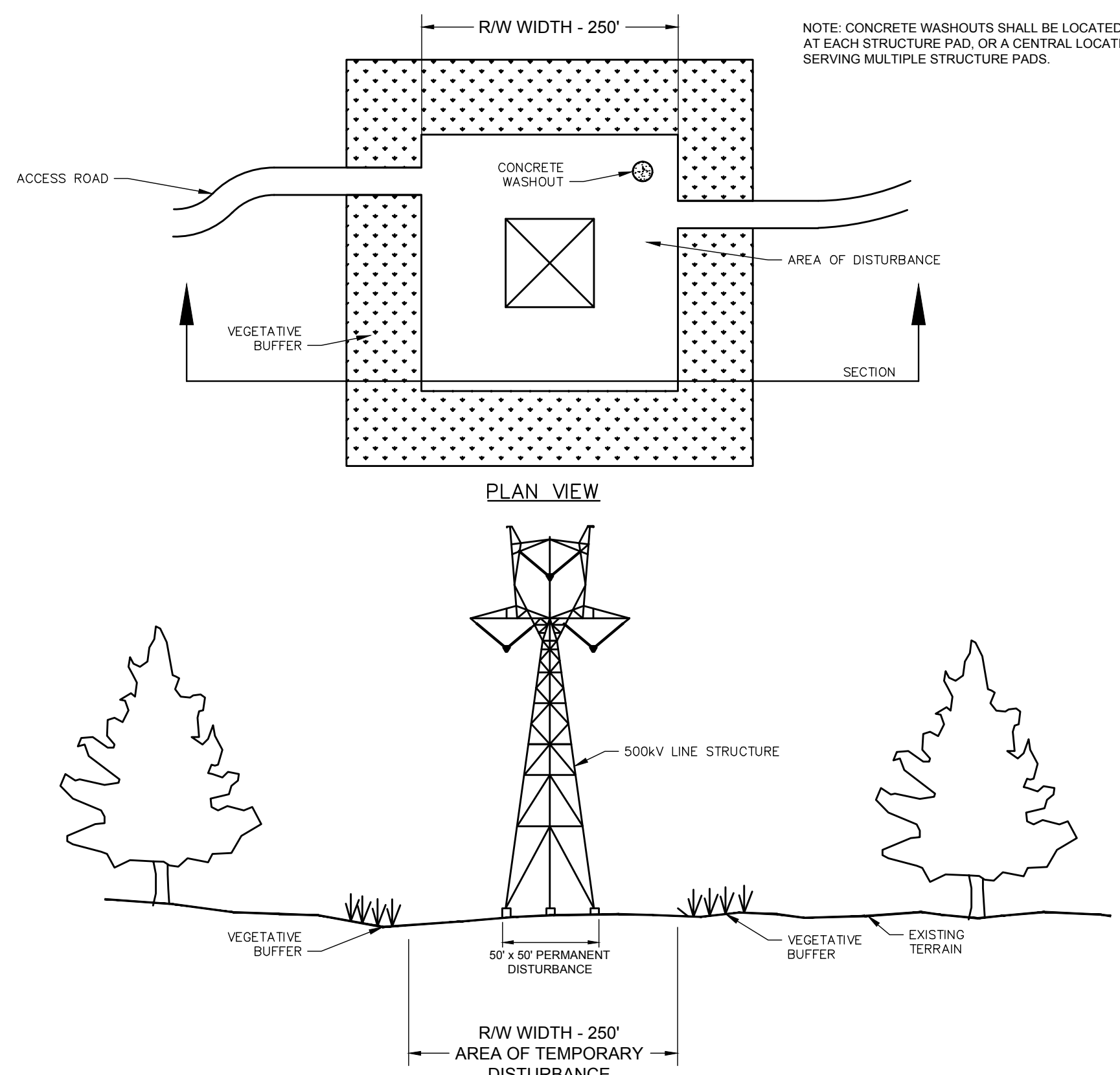
- GENERAL NOTES:**
- COMPOST FILTER BERMS ARE SEDIMENT CONTROL DEVICES FOR AREAS WHERE RUNOFF OCCURS AS SHEET FLOW. SEE SECTION 0209, OROSON STANDARD SPECIFICATIONS.
 - THE MAXIMUM DRAINAGE AREA FOR A CONTINUOUS BERM SHALL BE 1 ACRE PER 100 LINEAR FEET OF FILTER BERM.
 - WHERE POSSIBLE, BERMS SHOULD BE PLACED AWAY FROM THE TOE OF SLOPES A MINIMUM OF 5 FEET (10 FEET PREFERRED) TO ALLOW FOR ENERGY DISSIPATION AND SEDIMENT STORAGE.
 - PLACE THE BERM PARALLEL TO THE CONTOUR WITH THE END OF THE BERM TURNED UP.
 - THE BERM MAY BE VEGETATED WITH TEMPORARY OR PERMANENT SEEDING.
 - IF PLACED IN AN AREA WITH EXISTING VEGETATION, CUT VEGETATION TO 3" IN HEIGHT. DO NOT REMOVE THE EXISTING VEGETATION.
- MAINTENANCE NOTES:**
- COMPOST SOCKS SHALL BE INSPECTED AFTER EACH STORM EVENT AND REAPPLIED IF NEEDED.
 - SEDIMENT RETAINED BY THE SOCK SHALL BE REMOVED WHEN IT HAS REACHED 10% OF THE EXPOSED HEIGHT OF THE BERM. THE SEDIMENT CAN ALSO BE STABILIZED WITH VEGETATION AT THE END OF CONSTRUCTION.
 - BERMS CAN BE LEFT ON-SITE AND SEEDED, OR SPREAD OUT AS SOIL ENHANCEMENT.



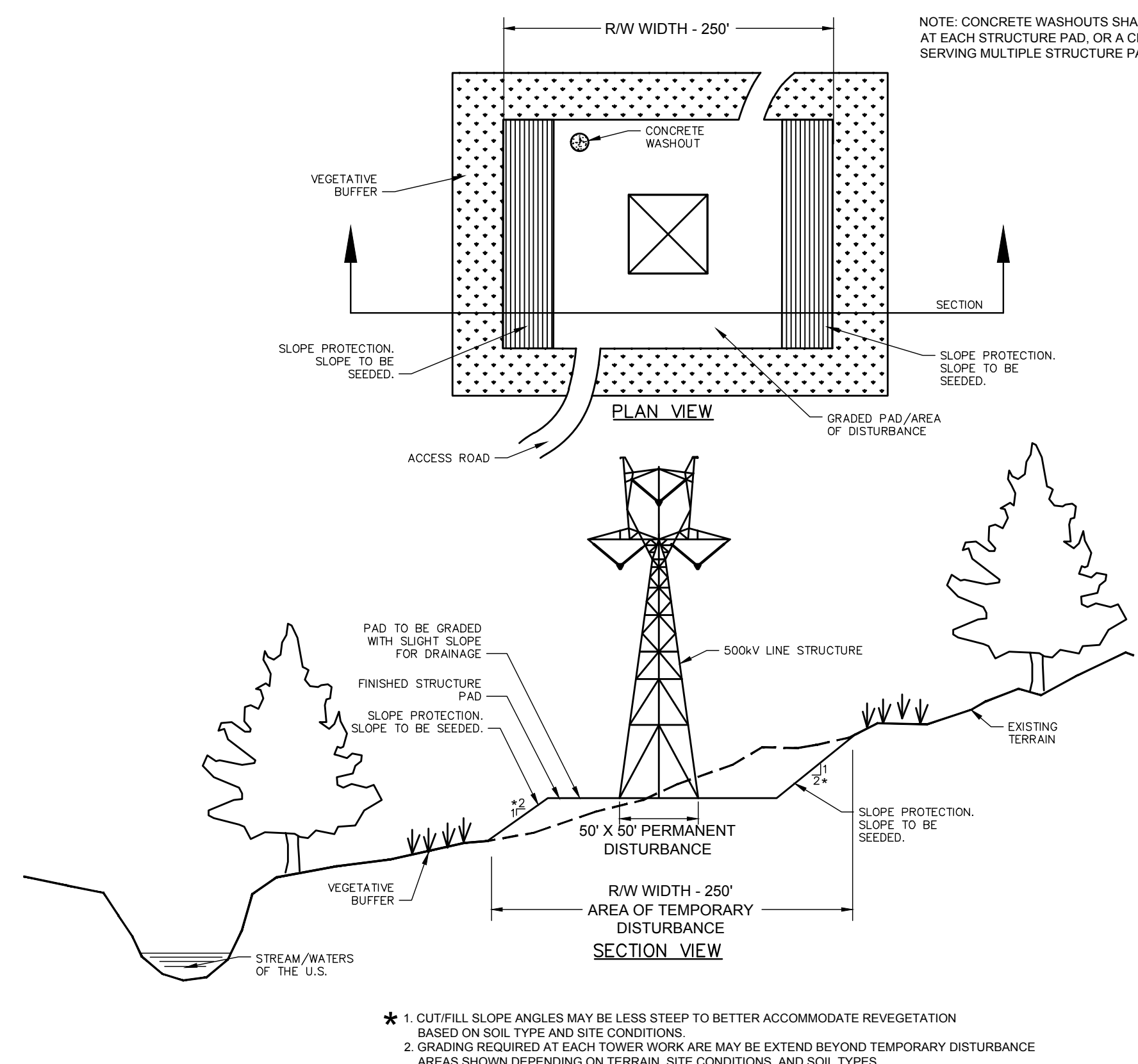
11/3 COMPOST BERM

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0	B2H EROSION AND SEDIMENT CONTROL PLANS - DRAFT	10-10-11	DKR	KTM	CAH
1	REVISE	11-22-11	DKR	KTM	KTM

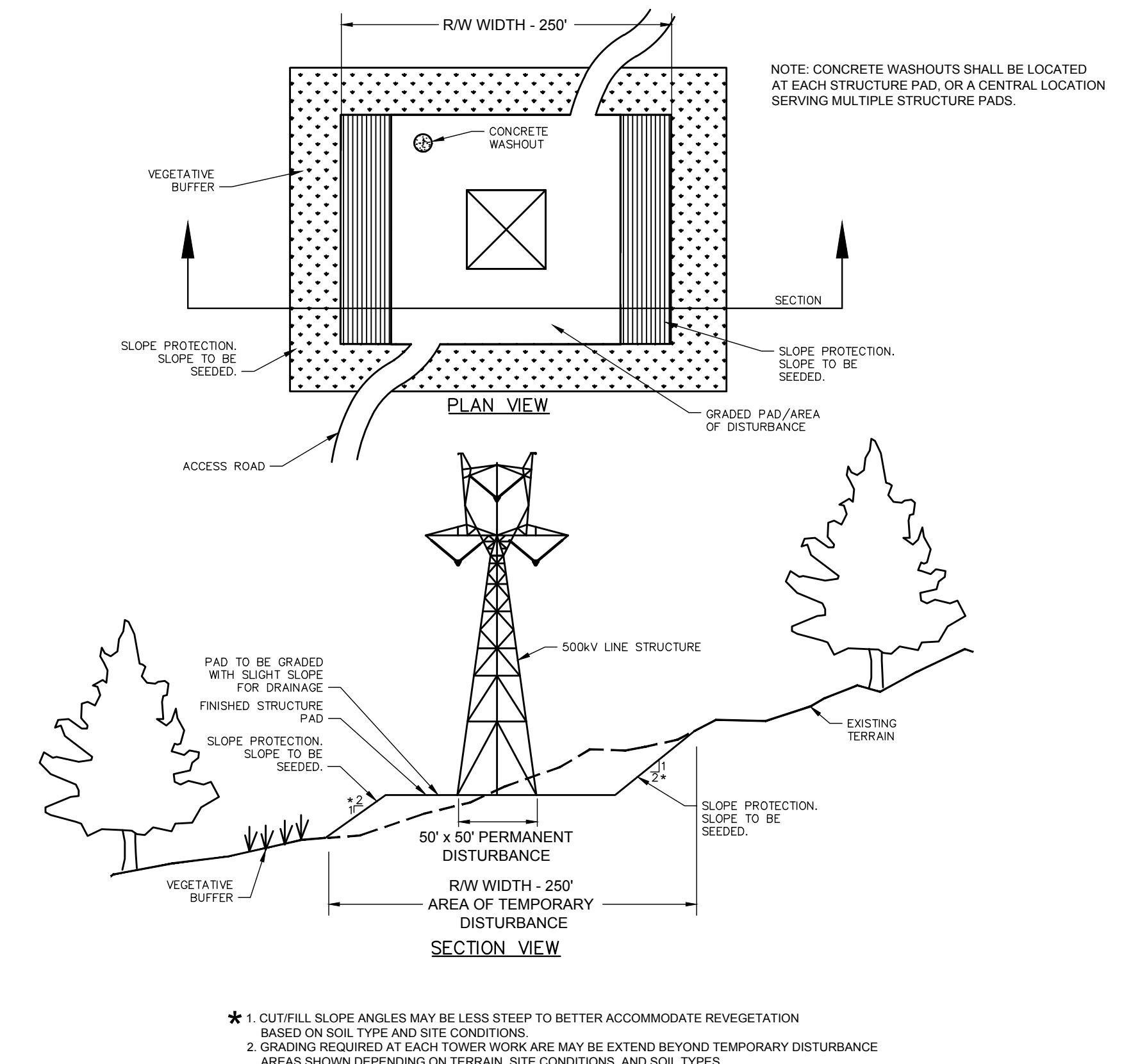
DESIGNER: KTM
DRAFTER: CAH
C.E.G. DKR
SCALE: NTS
DATE: 10-10-11
PROJECT INFORMATION: BOARDMAN TO HEMINGWAY 500KV LINE #XXX EROSION AND SEDIMENT CONTROL PLANS
TRANSMISSION DEPARTMENT
DRAWING #: DETAILS A
VAULT #: 23D-00000-00
SHEET #: 3 OF 5



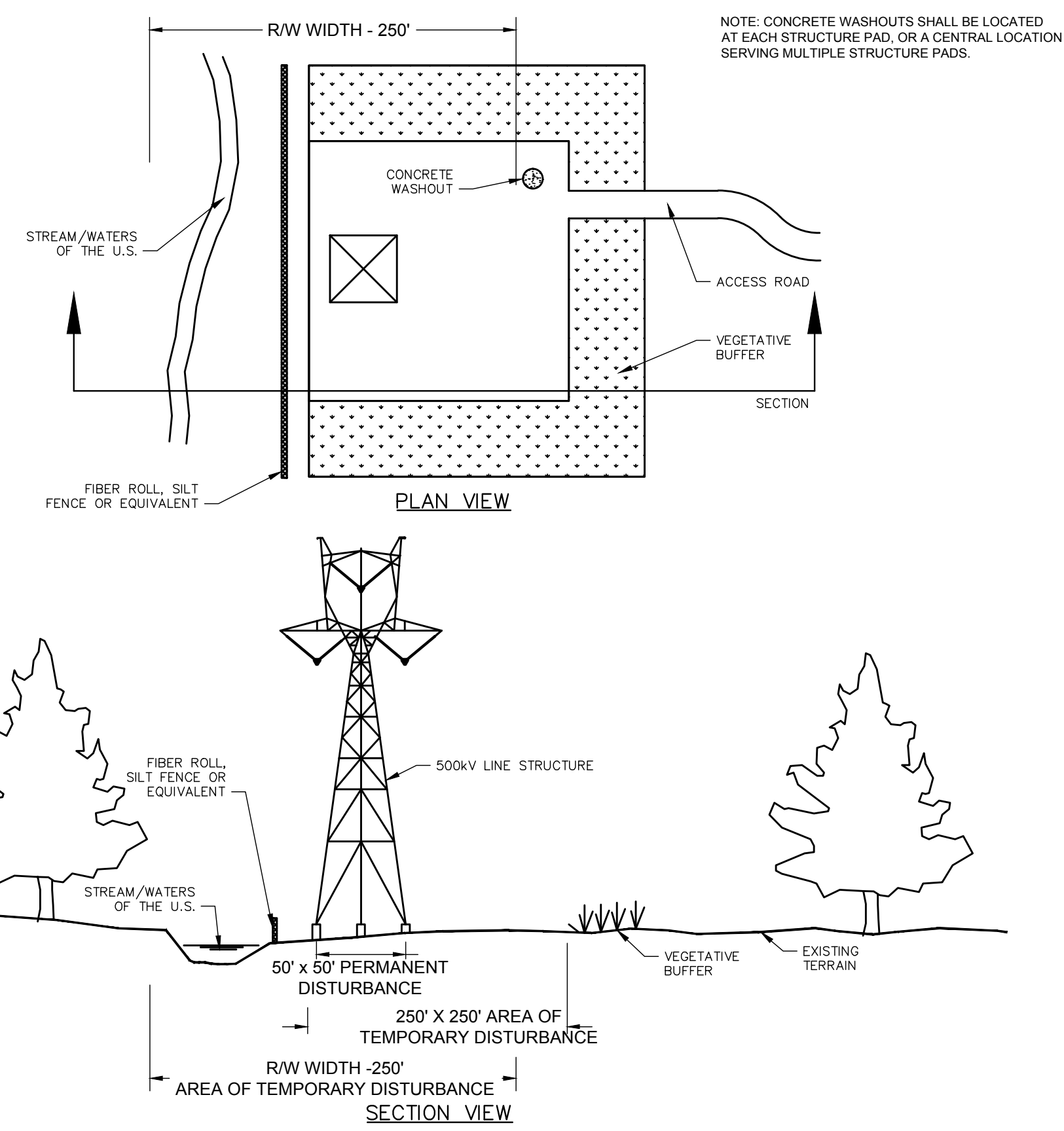
1/4 TYPICAL STRUCTURE SITE



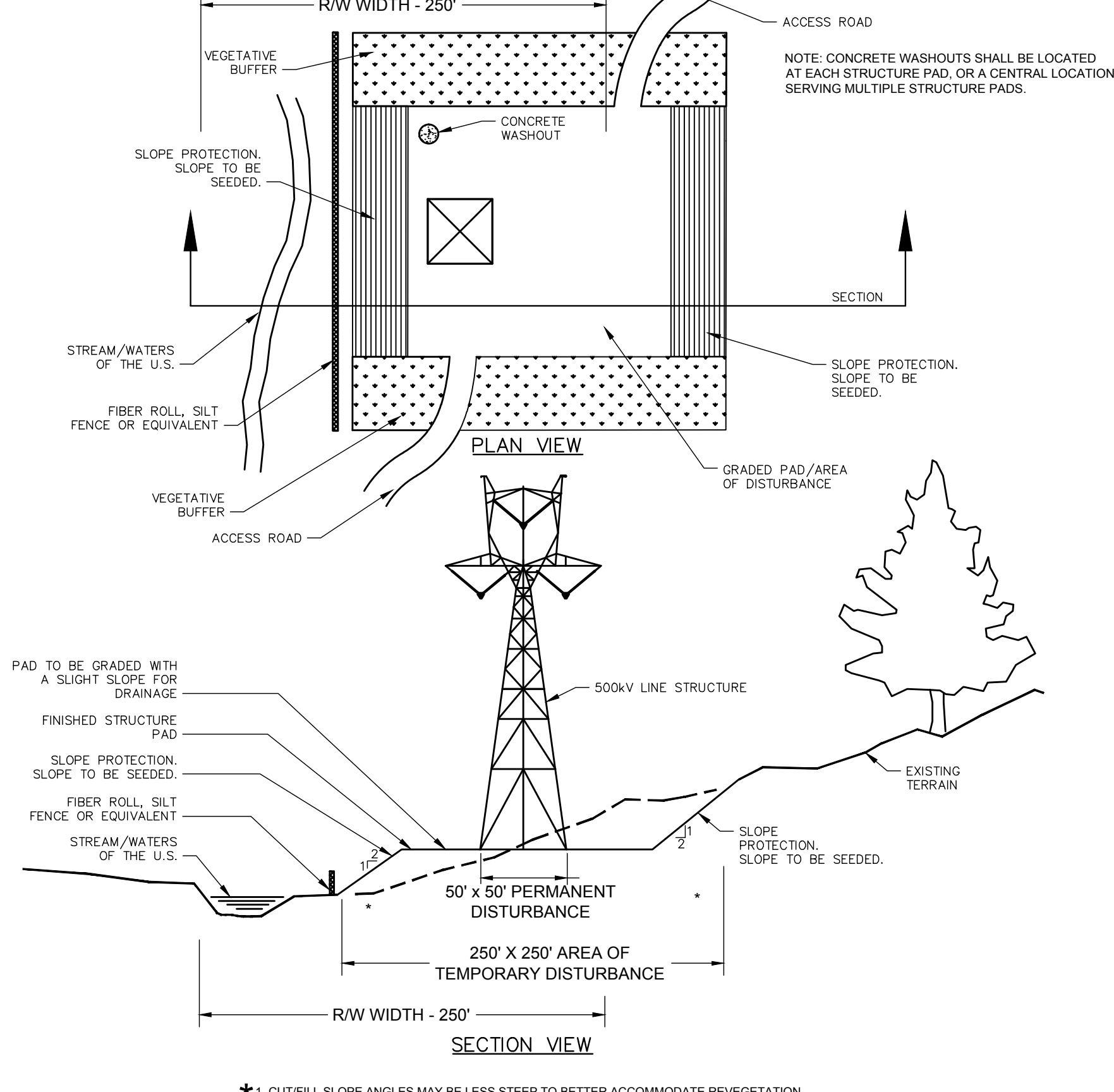
3/4 TYPICAL STRUCTURE SITE-ALTERNATE 2



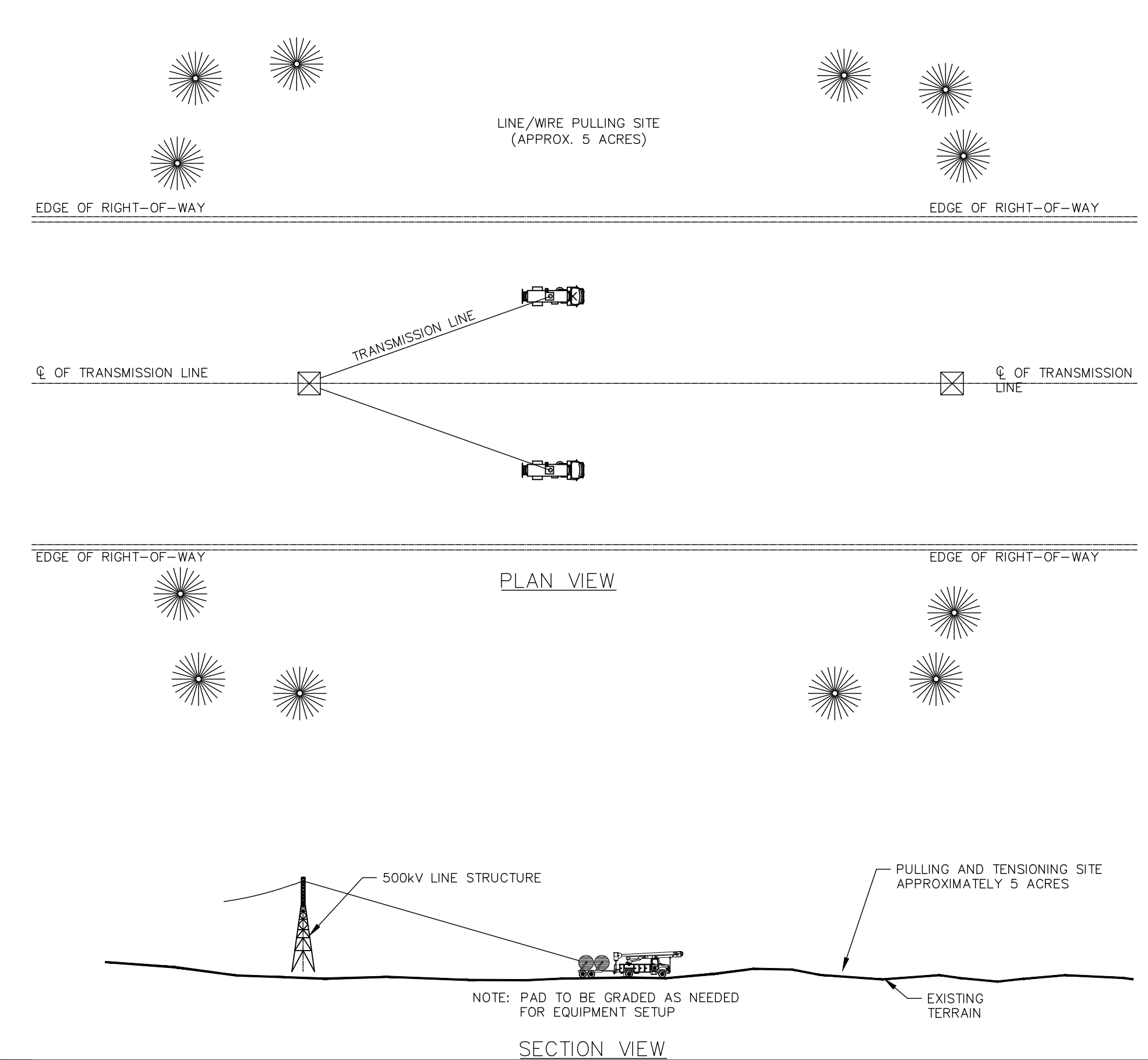
5/4 TYPICAL STRUCTURE SITE-ALTERNATE 4



2/4 TYPICAL STRUCTURE SITE-ALTERNATE 1



4/4 TYPICAL STRUCTURE SITE-ALTERNATE 3



6/4 PULLING AND TENSIONING SITE

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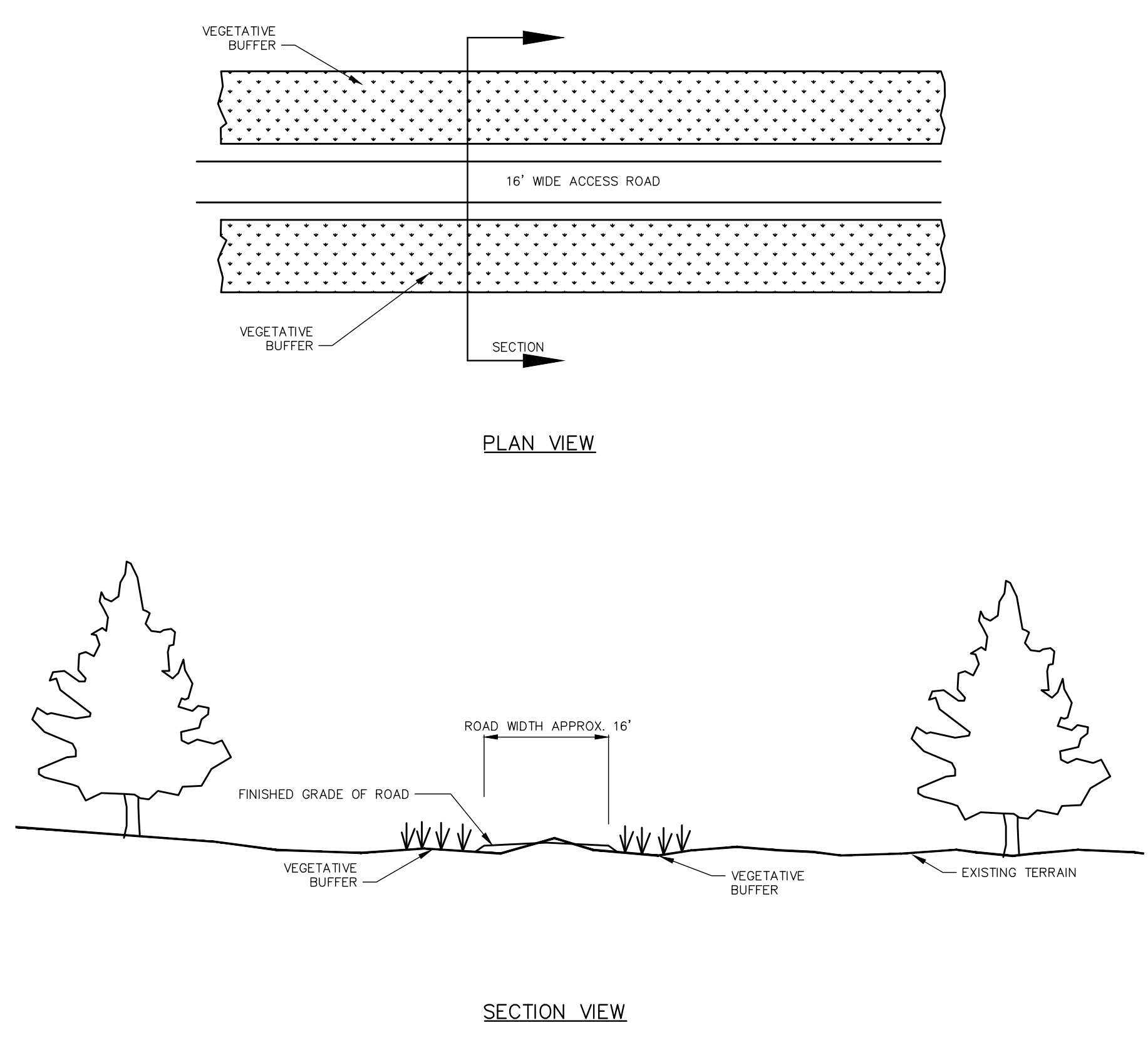
REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR

REFERENCES	DATE
DESIGNER: KTM	10-10-11
DRAFTER: CAH	10-10-11
C.E.G. DKR	10-10-11
SCALE: NTS	HORZ.
	VERT.

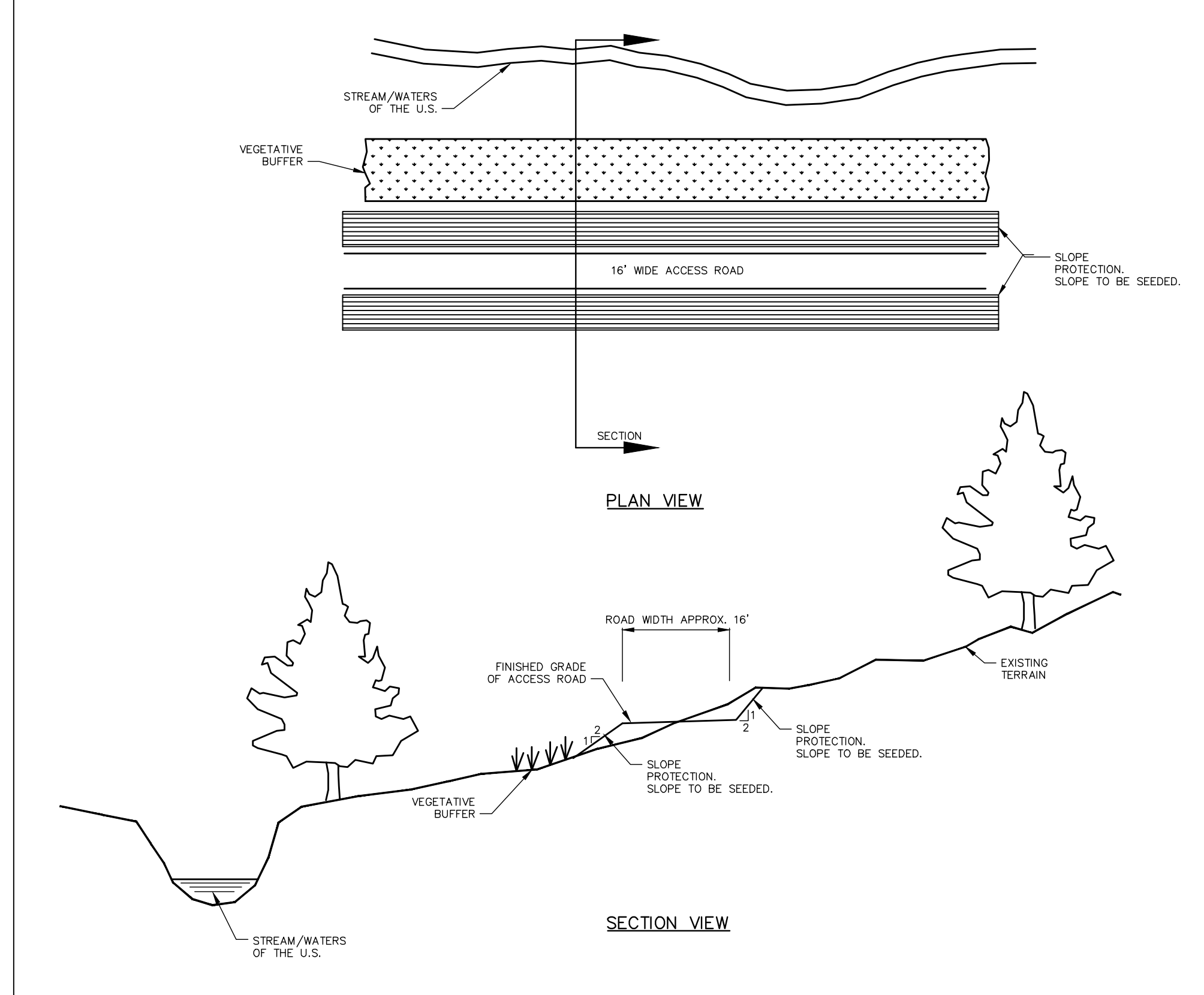
PROJECT INFORMATION	TRANSMISSION DEPARTMENT
BOARDMAN TO HEMINGWAY	DRAWING #: DETAILS B
500kV LINE #XXX	Vault #: 23D-00000-00
EROSION AND SEDIMENT CONTROL PLANS	SHEET #: 4 OF 5

PRELIMINARY

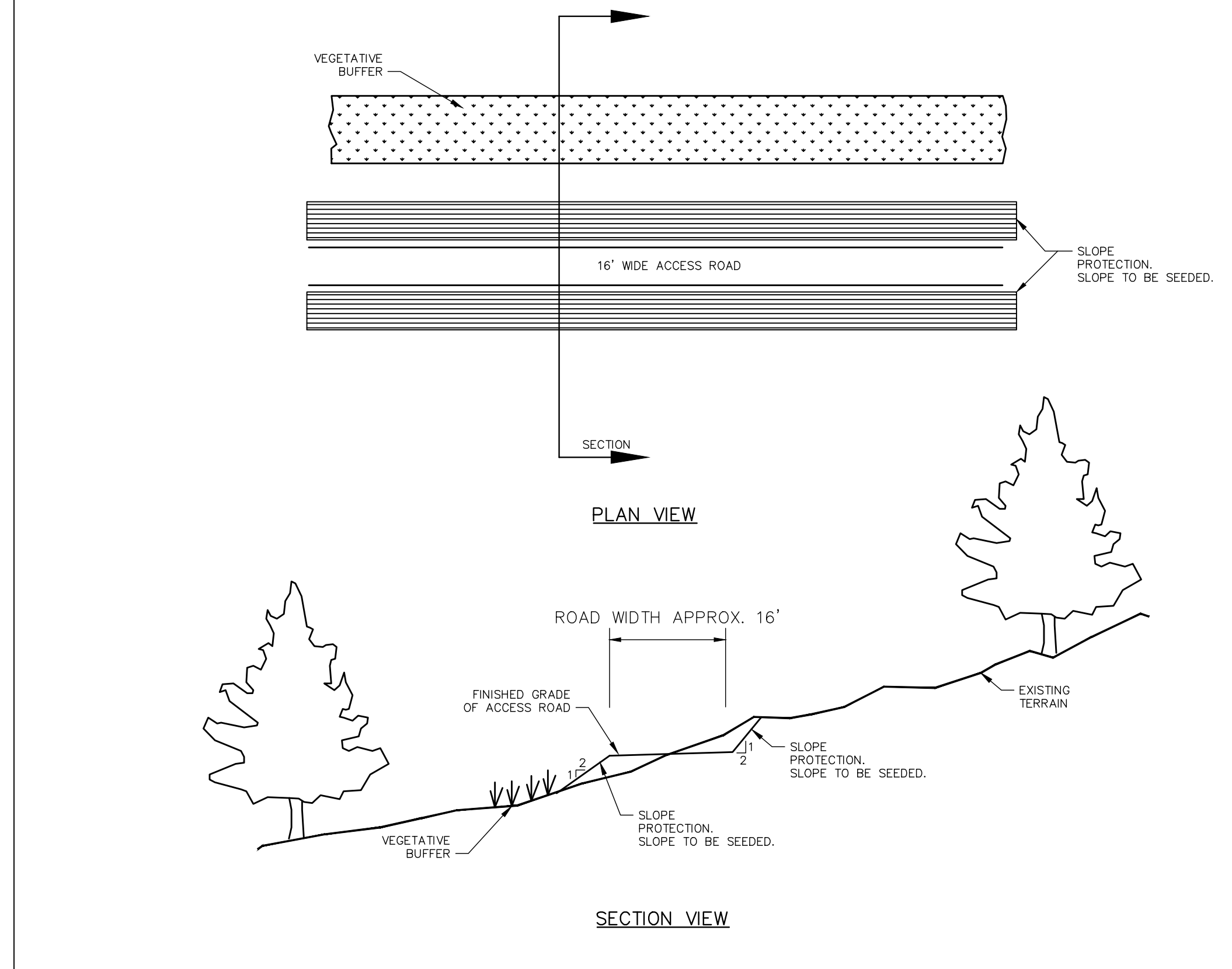
Mar 15, 2012 - 4:04 pm S:\ALL PROJECTS\B2H 500KV Line\B2H\B2H-11171.dwg



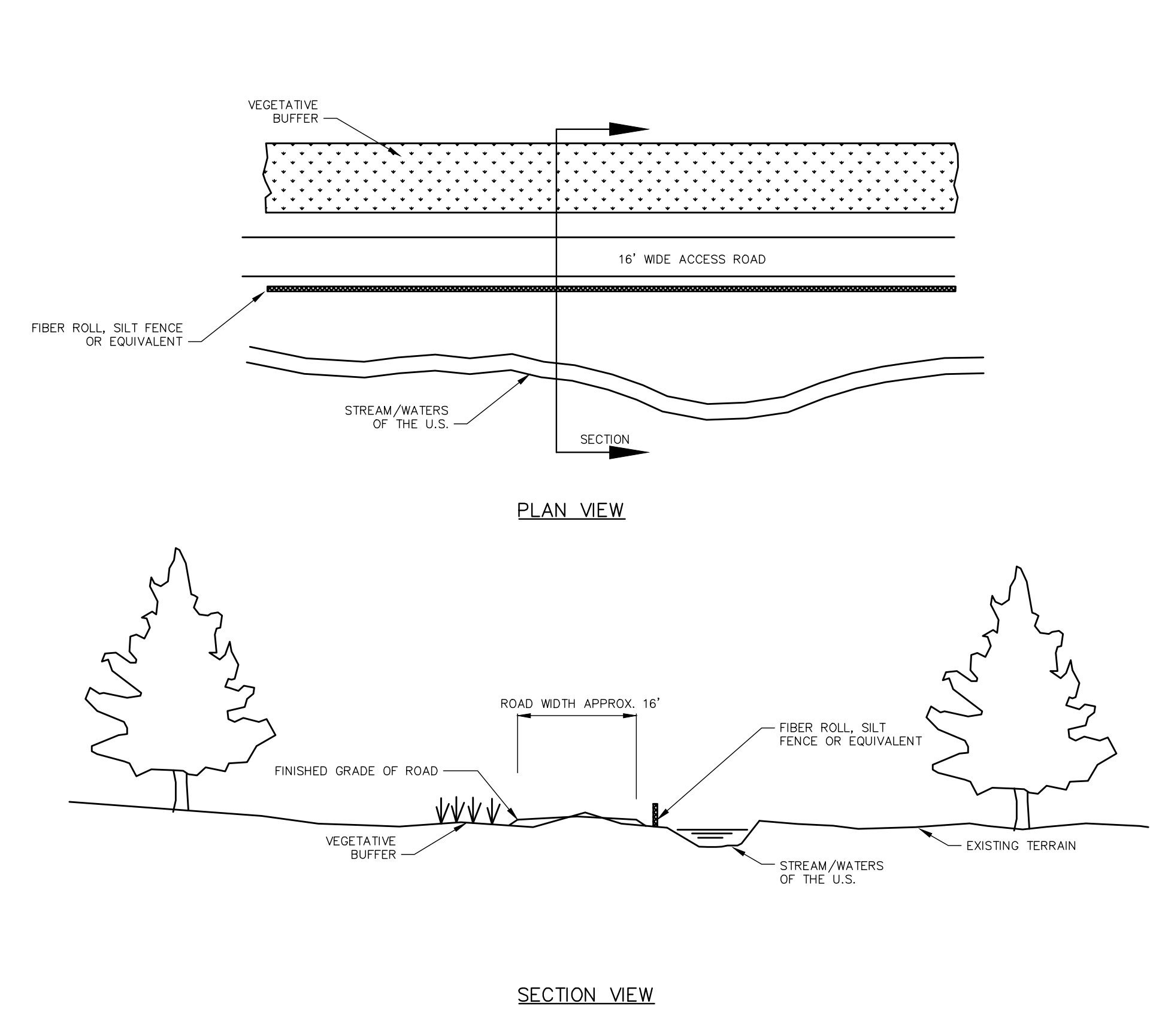
1/5 TYPICAL ACCESS ROAD INSTALLATION



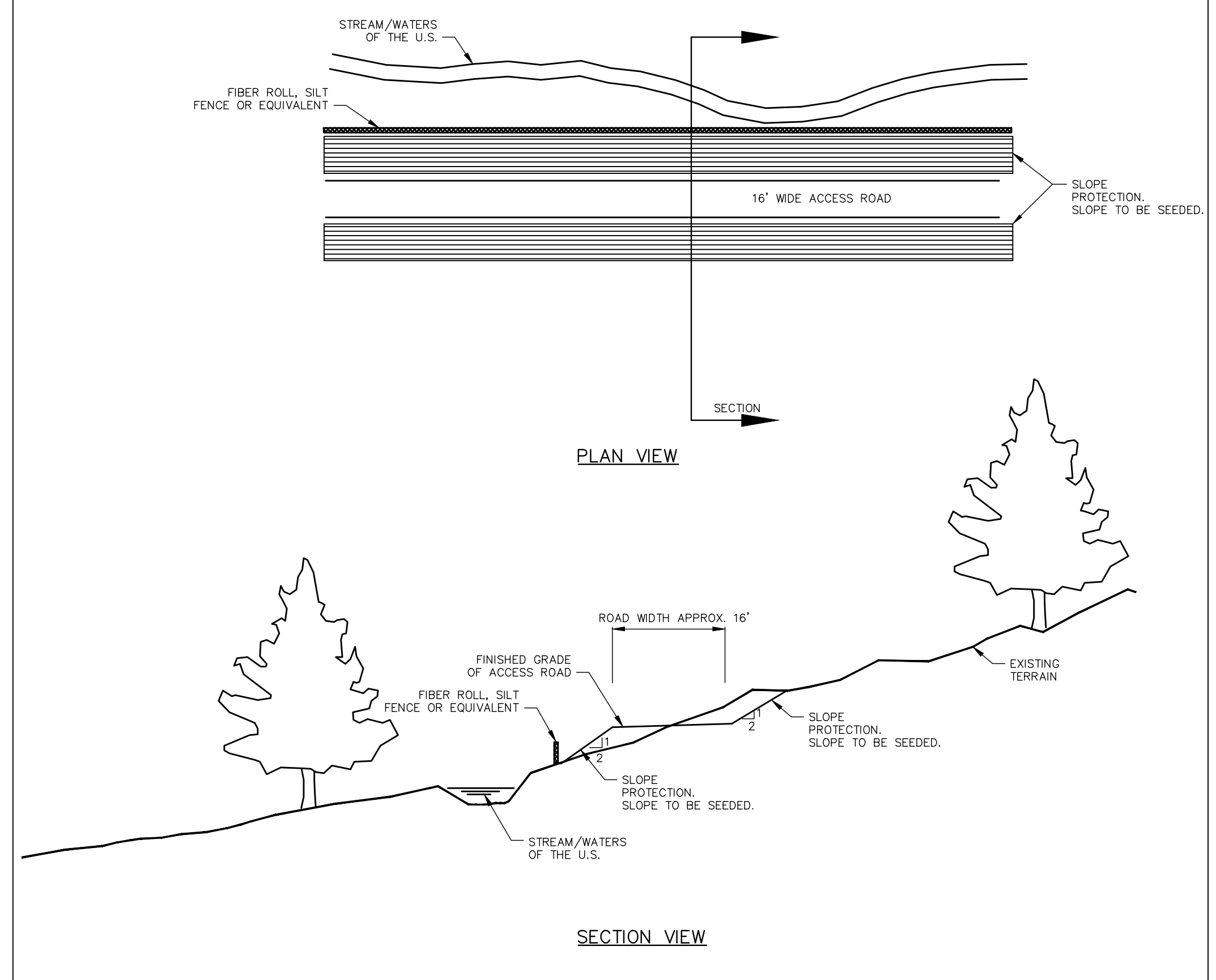
3/5 TYPICAL ACCESS ROAD INSTALLATION-ALTERNATE 2



5/5 TYPICAL ACCESS ROAD INSTALLATION-ALTERNATE 4



2/5 TYPICAL ACCESS ROAD INSTALLATION-ALTERNATE 1



4/5 TYPICAL ACCESS ROAD INSTALLATION-ALTERNATE 3

WATERBAR INSTALLATION FREQUENCY

SLOPE (%)	SPACING (FT)
<5%	125
5 TO 10	100
10 TO 20	75
20 TO 35	50
>35	25

PRELIMINARY

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REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR
0	B2H EROSION AND SEDIMENT CONTROL PLANS - DRAFT	10-10-11	DKR	KTM	CAH
1	REVISE	11-22-11	DKR	KTM	KTM

REV.	DESCRIPTION	DATE	C.E.G.	DSGN	DFTR

REFERENCES	DATE
DESIGNER: KTM	10-10-11
DRAFTER: CAH	10-10-11
C.E.G. DKR	10-10-11
SCALE: NTS	HORZ.
	VERT.

PROJECT INFORMATION
BOARDMAN TO HEMINGWAY 500kV LINE #XXX EROSION AND SEDIMENT CONTROL PLANS

TRANSMISSION DEPARTMENT
DRAWING #: DETAILS C
Vault #: 23D-00000-00
SHEET #: 5 OF 5

Mar 15, 2012 - 4:48pm S:\ALL PROJECTS\B2H 500kV Line\B2H\B2H-11171.dwg