B2: Wetland Function Assessment Forms

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	Table Rock
Investigator Name:	L.Cleveland and B. Sahatjian
Date of Field Assessment:	9/11/2014
County:	Jackson
Nearest Town:	White City
Latitude (decimal degrees):	42.4760
Longitude (decimal degrees):	-122.9630
TRS, quarter/quarter section and tax lot(s)	TRS: 36S 2W 5; Q-Q Section:O-NWNE; Taxlot: 10161941
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	n/a
Soil Map Units within the AA(list these in approx. rank order by area, from WSS web site or published county survey; see manual)	Debenger Brader loams, 1 to 15 percent slopes
Soil Map Units surrounding and contiguous to the AA(list all present in approx. rank order by area; see manual)	Debenger Brader loams, 1 to 15 percent slopes
	Coker Clay, 0 to 3 percent slopes
	Coker Clay, 1 to 5 percent slopes
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)	Depression
If tidal, the tidal phase during most of visit:	n/a
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.	
How many wetlands have you assessed previously using ORWAP (approx.)?	

	A	B	C	D	E
1		Date:	Site Name:		
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	*Mitigation Investment*	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	*Conservation Investment*	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	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	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	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 *natural land cover* (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	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%	1	
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	0	
78			<5% of the circle, located in >5 ponds or lakes	1	
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	1	
93			>5 miles	0	
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	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_SuppInfo 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_SuppInfo 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.	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	*Special Conservation Designations of the Wetland or Local Area*	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_SuppInfo** file	0	
135			NONE of above	1	

	A	B	C	D	E
136	D26	*Non-anadromous Fish Species of Conservation Concern*	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	*Invertebrate Species of Conservation Concern*	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)	1	
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	*Amphibian or Reptile of Conservation Concern*	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)	1	
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	*Nesting Waterbird Species of Conservation Concern*	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	*Feeding (Non-breeding) Waterbird Species of Conservation Concern*	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	*Songbird, Raptor, Mammal Species of Conservation Concern*	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	*Plant Species of Conservation Concern*	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	*Floodable Property*	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	*Downslope Storage*	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	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)	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	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	0	
231			20-47 inches per year	1	
232			48-77 inches per year	0	
233			>77 inches per year	0	

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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 SuppInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site ttp://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_SuppInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	1	
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 SuppInfo 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)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	1	
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	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 knowledgable 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.				
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., *Ledum*). 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., *Distichlis* , *Atriplex*) are common.	0	See file ORWAP_SuppInfo, 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	

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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_SuppInfo, 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	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.		

	Cat-tail, bulrush, or woody plants which are partly submerged in May			Any other plants which are partly submerged in May		
open water as % of AA	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.	0	
101			None of the above	1	
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	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	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_SuppInfo 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 (*Nuphar*) 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: *Egeria densa* (Brazilian elodea), *Hydrilla verticillata*, *Myriophyllum aquaticum* (parrotfeather watermilfoil), *Cabomba caroliniana* (fanwort), *Nymphaea odorata* (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_SuppInfo, 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_SuppInfo, 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_SuppInfo, 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:		*Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.* 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_SuppInfo, 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_SuppInfo, 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_SuppInfo, 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), Potomogeton (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.	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			*Linear:* 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			*Convoluted:* Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			*Intermediate:* 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			*Loamy* : includes silt, silt loam, loam, sandy loam	0	
294			*Clayey* : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	1	
295			*Organic* : includes muck, mucky peat, peat, and mucky mineral	0	
296			*Coarse* : 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%	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	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	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	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_SuppInfo, 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 *natural* (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:	Investigator:		Date:	

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
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.				
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
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.				
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
	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.				
	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
	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.				
	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				x
	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	1
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	3
	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.				
	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				
	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	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

ORWAP SCORES SHEET	**version 2.0.2 May 2012**		
Site Name:	Wetland A - Table Rock Substation		
Investigator Name:	L.Cleveland and B. Sahatjian		
Date of Field Assessment:	9/11/2014		
Latitude (decimal degrees):		Longitude (decimal degrees):	-122.963

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	1.25	2.58
Sediment Retention & Stabilization (SR)	10.00	4.46
Phosphorus Retention (PR)	10.00	5.01
Nitrate Removal & Retention (NR)	10.00	4.39
Thermoregulation (T)	0.00	0.00
Carbon Sequestration (CS)	1.52	
Organic Matter Export (OE)	0.00	
Aquatic Invertebrate Habitat (INV)	6.61	7.00
Anadromous Fish Habitat (FA)	0.00	4.22
Non-anadromous Fish Habitat (FR)	0.98	10.00
Amphibian & Reptile Habitat (AM)	6.75	8.00
Waterbird Feeding Habitat (WBF)	4.22	4.67
Waterbird Nesting Habitat (WBN)	0.00	3.50
Songbird, Raptor, & Mammal Habitat (SBM)	5.14	6.67
Pollinator Habitat (POL)	5.89	5.00
Native Plant Diversity (PD)	5.16	7.00

GROUPED FUNCTIONS	**Group Scores (functions)**	**Group Scores (values)**	
Hydrologic Function (WS)	1.25	2.58	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	10.00	5.01	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	1.52		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	0.98	10.00	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.75	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.89	7.00	(maximum of scores for PD, POL, and SBM)
Public Use & Recognition (PU)		2.26	(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)		6.59
Wetland Stressors (STR)		1.25
Wetland Sensitivity (SEN)		10.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	0.00
Slope	4.48
Flat	0.00
Depressional	0.00
Lacustrine	0.00

CoverPg: Basic Description of Assessment	ORWAP version 2.0.2 May 2012
Site Name:	Table Rock
Investigator Name:	L.Cleveland and B. Sahatjian
Date of Field Assessment:	9/10/2014
County:	Jackson
Nearest Town:	White City
Latitude (decimal degrees):	42.4760
Longitude (decimal degrees):	-122.9660
TRS, quarter/quarter section and tax lot(s)	TRS: 36S 2W 5; Q-Q Section:O-NENW; Taxlot: 10161957
Approximate size of the Assessment Area (AA, in acres)	4.68
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	n/a
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	Debenger-Brader loams, 1 to 15 percent slopes
	Coker Clay, 0 to 3 percent slopes
	Gregory silty clay loam, 0 to 3 percent slopes
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	Debenger-Brader loams, 1 to 15 percent slopes
	Coker Clay, 0 to 3 percent slopes
	Gregory silty clay loam, 0 to 3 percent slopes
	Carney clay, 1 to 5 percent slopes
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)	Depression/Slope
If tidal, the tidal phase during most of visit:	n/a
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.	
How many wetlands have you assessed previously using ORWAP (approx.)?	
Comments about the site or this ORWAP assessment (attach extra page if desired):	

	A	B	C	D	E
1		Date:	Site Name:		
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	*Mitigation Investment*	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	*Conservation Investment*	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	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	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	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 *natural land cover* (see definition on right) 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., 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	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%	1	
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	0	
78			<5% of the circle, located in >5 ponds or lakes	1	
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	1	
93			>5 miles	0	
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_SuppInfo 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_SuppInfo** 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.	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	*Special Conservation Designations of the Wetland or Local Area*	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_SuppInfo** file	0	
135			NONE of above	1	

	A	B	C	D	E
136	D26	*Non-anadromous Fish Species of Conservation Concern*	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	*Invertebrate Species of Conservation Concern*	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)	1	
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	*Amphibian or Reptile of Conservation Concern*	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)	1	
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	*Nesting Waterbird Species of Conservation Concern*	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	*Feeding (Non-breeding) Waterbird Species of Conservation Concern*	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	*Songbird, Raptor, Mammal Species of Conservation Concern*	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	*Plant Species of Conservation Concern*	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	*Floodable Property*	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	*Downslope Storage*	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	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)	0	
186			1 to 10% of its CA	0	
187			10 to 100% of its CA	1	
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	

	A	B	C	D	E
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	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 SuppInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site ttp://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_SuppInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	1	
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 SuppInfo 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)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	1	
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	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 knowledgable 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.				
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., *Ledum*). 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., *Distichlis* , *Atriplex*) are common.	0	See file ORWAP_SuppInfo, 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_SuppInfo, 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	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	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%.	2	[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.	0	
101			None of the above	1	
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	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	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_SuppInfo 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 (*Nuphar*) 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: *Egeria densa* (Brazilian elodea), *Hydrilla verticillata*, *Myriophyllum aquaticum* (parrotfeather watermilfoil), *Cabomba caroliniana* (fanwort), *Nymphaea odorata* (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_SuppInfo, 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_SuppInfo, 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_SuppInfo, 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:		*Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.* 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_SuppInfo, 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_SuppInfo, 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_SuppInfo, 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), Potomogeton (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.	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			*Linear:* 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			*Convoluted:* Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			*Intermediate:* 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			*Loamy* : includes silt, silt loam, loam, sandy loam	0	
294			*Clayey* : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	1	
295			*Organic* : includes muck, mucky peat, peat, and mucky mineral	0	
296			*Coarse* : 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)	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	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_SuppInfo, 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 *natural* (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	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:	Investigator:		Date:	

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
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.				
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
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.				
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
	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.				
	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
	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.				
	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				x
	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	1
	When most of the timing shift began	<3 yrs ago	3-9 yrs ago	10-100 yrs ago	0
	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.				
	Input timing now vs. previously	shift of weeks	shift of days	shift of hours or minutes	1
	Flashiness or muting	became very flashy or controlled	intermediate	became mildly flashy or controlled	1
				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				x
	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	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=	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

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

ORWAP SCORES SHEET	**version 2.0.2 May 2012**		
Site Name:	Wetland B - Table Rock Substation		
Investigator Name:	L.Cleveland and B. Sahatjian		
Date of Field Assessment:	9/10/2014		
Latitude (decimal degrees):		Longitude (decimal degrees):	-122.966

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	3.75	2.42
Sediment Retention & Stabilization (SR)	10.00	4.10
Phosphorus Retention (PR)	10.00	4.89
Nitrate Removal & Retention (NR)	10.00	4.31
Thermoregulation (T)	0.00	0.00
Carbon Sequestration (CS)	1.65	
Organic Matter Export (OE)	0.00	
Aquatic Invertebrate Habitat (INV)	5.80	7.00
Anadromous Fish Habitat (FA)	0.00	4.73
Non-anadromous Fish Habitat (FR)	1.00	10.00
Amphibian & Reptile Habitat (AM)	6.59	8.00
Waterbird Feeding Habitat (WBF)	4.73	4.67
Waterbird Nesting Habitat (WBN)	0.00	3.50
Songbird, Raptor, & Mammal Habitat (SBM)	5.10	6.67
Pollinator Habitat (POL)	5.23	5.00
Native Plant Diversity (PD)	2.90	7.00

GROUPED FUNCTIONS	**Group Scores (functions)**	**Group Scores (values)**	
Hydrologic Function (WS)	3.75	2.42	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	10.00	4.89	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	1.65		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	1.00	10.00	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	6.59	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.23	7.00	(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)		5.96
Wetland Stressors (STR)		2.62
Wetland Sensitivity (SEN)		10.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	0.00
Slope	4.17
Flat	8.33
Depressional	1.11
Lacustrine	0.00

CoverPg: Basic Description of Assessment	2012
Site Name:	Table Rock
Investigator Name:	L.Cleveland and B. Sahatjian
Date of Field Assessment:	9/10/2014
County:	Jackson
Nearest Town:	White City
Latitude (decimal degrees):	42.4760
Longitude (decimal degrees):	-122.9660
TRS, quarter/quarter section and tax lot(s)	TRS: 36S 2W 5; Q-Q Section:O-NENW; Taxlot: 10161957
Approximate size of the Assessment Area (AA, in acres)	0.09
AA as percent of entire wetland (approx.)	100%
If delineated, DSL file number (WD #) if known	n/a
Soil Map Units within the AA (list these in approx. rank order by area, from WSS web site or published county survey; see manual)	Coker clay, 0 to 3 percent slopes
Soil Map Units surrounding and contiguous to the AA (list all present in approx. rank order by area; see manual)	Coker clay, 0 to 3 percent slopes
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)	Depression/Slope
If tidal, the tidal phase during most of visit:	n/a
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.	
How many wetlands have you assessed previously using ORWAP (approx.)?	
Comments about the site or this ORWAP assessment (attach extra page if desired):	

	A	B	C	D	E
1		Date:	Site Name:		
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	*Mitigation Investment*	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	*Conservation Investment*	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	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	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	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 *natural land cover* (**see definition on right**) 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., 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	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%	1	
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	0	
78			<5% of the circle, located in >5 ponds or lakes	1	
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	1	
93			>5 miles	0	
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	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_SuppInfo 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_SuppInfo 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.	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	*Special Conservation Designations of the Wetland or Local Area*	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_SuppInfo** file	0	
135			NONE of above	1	

	A	B	C	D	E
136	D26	*Non-anadromous Fish Species of Conservation Concern*	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	*Invertebrate Species of Conservation Concern*	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)	1	
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	*Amphibian or Reptile of Conservation Concern*	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)	1	
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	*Nesting Waterbird Species of Conservation Concern*	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	*Feeding (Non-breeding) Waterbird Species of Conservation Concern*	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	*Songbird, Raptor, Mammal Species of Conservation Concern*	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	*Plant Species of Conservation Concern*	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	*Floodable Property*	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	*Downslope Storage*	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	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)	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	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	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 SuppInfo file.		If you don't know it, determine which county the wetland is in from the ODEQ web site ttp://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_SuppInfo)	0	
237			bottom 18 (see Table 6 in WQprob worksheet)	1	
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 SuppInfo 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)	0	
242			bottom 18 (see Table 7 in WQprob worksheet)	1	
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	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 knowledgable 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.				
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., *Ledum*). 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., *Distichlis* , *Atriplex*) are common.	0	See file ORWAP_SuppInfo, 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_SuppInfo, 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)	1	[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	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.	0	
101			None of the above	1	
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	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	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	0	
150			none, or <100 sq. ft, but some that cover >10,000 are within 300 ft of the AA	1	
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_SuppInfo 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 (*Nuphar*) 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: *Egeria densa* (Brazilian elodea), *Hydrilla verticillata*, *Myriophyllum aquaticum* (parrotfeather watermilfoil), *Cabomba caroliniana* (fanwort), *Nymphaea odorata* (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_SuppInfo, 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_SuppInfo, 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_SuppInfo, 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:		*Note: For sites larger than 10 acres, this should be determined from aerial imagery rather than estimated only in the field.* 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_SuppInfo, 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_SuppInfo, 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_SuppInfo, 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), Potomogeton (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.	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			*Linear:* 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			*Convoluted:* Wetland perimeter is many times longer than maximum width of the wetland, with many alcoves and indentations ("fingers")	0	
288			*Intermediate:* 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			*Loamy* : includes silt, silt loam, loam, sandy loam	0	
294			*Clayey* : includes clay, clay loam, silty clay, silty clay loam, sandy clay, sandy clay loam	1	
295			*Organic* : includes muck, mucky peat, peat, and mucky mineral	0	
296			*Coarse* : 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)	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	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_SuppInfo, 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 *natural* (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:	Investigator:		Date:	

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
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.				
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
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.				
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
	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.				
	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
	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.				
	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
	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.				
	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	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

ORWAP SCORES SHEET	version 2.0.2 May 2012		
Site Name:	Table Rock - Wetland C		
Investigator Name:	L.Cleveland and B. Sahatjian		
Date of Field Assessment:	9/10/2014		
Latitude (decimal degrees):		Longitude (decimal degrees):	-122.966

Specific Functions:	Relative Effectiveness of the Function	Relative Values of the Function
Water Storage & Delay (WS)	0.00	2.58
Sediment Retention & Stabilization (SR)	10.00	4.67
Phosphorus Retention (PR)	10.00	5.01
Nitrate Removal & Retention (NR)	10.00	4.39
Thermoregulation (T)	0.00	0.00
Carbon Sequestration (CS)	1.11	
Organic Matter Export (OE)	0.00	
Aquatic Invertebrate Habitat (INV)	7.78	7.00
Anadromous Fish Habitat (FA)	0.00	4.29
Non-anadromous Fish Habitat (FR)	0.00	10.00
Amphibian & Reptile Habitat (AM)	5.56	8.00
Waterbird Feeding Habitat (WBF)	4.29	4.67
Waterbird Nesting Habitat (WBN)	0.00	3.50
Songbird, Raptor, & Mammal Habitat (SBM)	4.43	6.67
Pollinator Habitat (POL)	5.56	5.00
Native Plant Diversity (PD)	5.10	7.00

GROUPED FUNCTIONS	**Group Scores (functions)**	**Group Scores (values)**	
Hydrologic Function (WS)	0.00	2.58	(identical to Water Storage and Delay function and value scores)
Water Quality Group (WQ)	10.00	5.01	(maximum of scores for SR, PR, NR, and T)
Carbon Sequestration (CS)	1.11		(identical to Carbon Sequestration score above)
Fish Support Group (FISH)	0.00	10.00	(maximum of scores for FA and FR)
Aquatic Support Group (AQ)	7.78	8.00	(maximum of scores for OE, AM, INV, WBF, and WBN)
Terrestrial Support Group (TERR)	5.56	7.00	(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)		6.31
Wetland Stressors (STR)		1.33
Wetland Sensitivity (SEN)		10.00

HGM Class - Relative Probabilities (select max)	
Estuarine	0.00
Riverine	0.00
Slope	5.42
Flat	9.17
Depressional	2.22
Lacustrine	0.00

Oregon EXPLORER — Oregon Rapid Wetland Assessment Protocol

42.4760, -122.9630

Location Information

Within?	Layer
No	100-yr Floodplain
No	Special Protected Area
No	Wetland Priority Site
Yes	300ft of a Spring
No	100ft of Essential Salmonid Habitat
No	Mapped Wetland

Watershed (HUC6): Sams Creek-Rogue River (171003080203)

Presettlement Vegetation Class: Roemer fescue

Rare Wetland Type (within 1 mile): Vernal Pool

Average Annual Precipitation: 22.46 inches

Hydrologic Landscape Class: Dry

View Salinity Maps (pdf)

View Important Bird Areas (Audubon) .pdf

Soil Information

Soil Symbol: 44C

Soil Name: Debenger-Brader loams, 1 to 15 percent slopes

Hydric Rating: Yes

Hydric Percent: 5

Farmland Class: Farmland of statewide importance

Dom. Cond. Non-irrigated Capability Class: Erosion - very severe limitations that restrict the choice of plants, require very careful management, or both

Erosion hazard: Moderate

Watershed Information

Uniqueness of Watershed by Size/Type

HUC Code	HUC Name	FW, em, lg (Acres)	FW, s/f, lg (Acres)	EST, em, lg (Acres)	EST, em, lg (Acres)
HUC4: 17100308	Middle Rogue	43.61569	213.61957	0	0
HUC5: 1710030802	Rogue River-Gold Hill	43.61569	213.61957	0	0
HUC6: 171003080203	Rogue River-Sams Creek	8.34208	17.94038	0	0

[abbreviations: FW- freshwater (wetland); em- Emergent; lg- largest; s/f- Shrub/Forested; EST- Estuarine (wetland)

HUC Best *

HUC Code	HUC Name	Is HUC Best?	Greatest Criteria Met
HUC4: 17100308	n/a	No	n/a
HUC5: 1710030802	n/a	No	n/a
HUC6: 171003080203	Rogue River-Sams Creek	Yes	type diversity

Rare Species Scores

Rare Species Type	Max Score	Sum Score
Anadromous Fish Species	0.33	0.33
Non-anadromous Fish Species	0.45	0.90
Amphibian & Reptile Species	0.08	0.08
Feeding Waterbirds	0.00	0.00
Nesting Waterbirds	0.00	0.00
Songbirds, Raptors, and Mammals	0.33	0.97
Invertebrate Species	0.55	0.55
Plant Species	0.55	1.43
All other species	0.00	0.00

Total Score: **4.26**

Element of Occurrence (Rare Species)

At Lat/Long	No EO Records
Within 1 mile	4 EO Records
In HUC6 watershed	23 EO Records

Element of Occurrence Record(s) in HUC6

1 Northern spotted owl [3 occurences]
Strix occidentalis caurina
ORBIC State Status: S3
ORBIC Global Status: G3T3
ODFW Strategy Species: No

2 Greene's popcorn flower [6 occurences]
Plagiobothrys greenei
ORBIC State Status: S2?
ORBIC Global Status: G4
ODFW Strategy Species: No

3 Henderson's bentgrass [1 occurences]
Agrostis hendersonii
ORBIC State Status: SH
ORBIC Global Status: G1Q
ODFW Strategy Species: No

4 Highcap lanx (snail) [1 occurences]
Lanx alta
ORBIC State Status: S1
ORBIC Global Status: G2
ODFW Strategy Species: No

5 Lewis's woodpecker [1 occurences]
Melanerpes lewis
ORBIC State Status: S2S3B
ORBIC Global Status: G4
ODFW Strategy Species: Yes

6 California mountain kingsnake [1 occurences]

Lampropeltis zonata

ORBIC State Status: S3S4

ORBIC Global Status: G4G5

ODFW Strategy Species: No

7 Austin's plagiobothrys [3 occurences]

Plagiobothrys austiniae

ORBIC State Status: S2?

ORBIC Global Status: G4

ODFW Strategy Species: No

8 American peregrine falcon [1 occurences]

Falco peregrinus anatum

ORBIC State Status: S2B

ORBIC Global Status: G4T4

ODFW Strategy Species: No

9 Pallid bat [1 occurences]

Antrozous pallidus

ORBIC State Status: S2

ORBIC Global Status: G5

ODFW Strategy Species: Yes

10 Coho salmon (Southern Oregon/Northern California Coasts ES

Oncorhynchus kisutch pop. 2

ORBIC State Status: S2

ORBIC Global Status: G4T2Q

ODFW Strategy Species: No

11 Steelhead (Klamath Mountains Province ESU, summer run) [1

Oncorhynchus mykiss pop. 24

ORBIC State Status: S2S3

ORBIC Global Status: G5T2T3Q

ODFW Strategy Species: No

12 Saw-tooth sedge [1 occurences]

Carex serratodens

ORBIC State Status: S3

ORBIC Global Status: G5

ODFW Strategy Species: No

13 Steelhead (Klamath Mountains Province ESU, winter run) [1

Oncorhynchus mykiss pop. 25

ORBIC State Status: S2S3

ORBIC Global Status: G5T3Q

ODFW Strategy Species: No

14 White meconella [1 occurences]

Meconella oregana

ORBIC State Status: S1

ORBIC Global Status: G2G3

ODFW Strategy Species: No

View wildlife list Sams Creek-Rogue River (171003080203)

* HUC Best: Oregon watersheds (HUC4, HUC5, HUC6) with greatest type diversity, proportional area, or density of wetlands according to available National Wetland Inventory maps.

"Type diversity" is the number of unique NWI codes in the watershed (e.g., PEMA, PEMC, PEMCx) and excluded types that have no vegetation component (e.g., PUBH, R3US2).

component (e.g., PUBH, R3US2)

"Density" is the number of vegetated NWI polygons divided by the acreage of the watershed; many of these polygons may be contiguous with each other, forming a single wetland.

"Proportional Area" is the proportion of the watershed's total area occupied by vegetated wetlands as mapped by NWI.

* The digital maps used to determine this do not show many wetlands or cover the entire state. Data were compiled only from watersheds that have been at least 90% mapped by NWI (see worksheets for HUC4, 5, and 6). Data were received in November 2008 from ORBIC.

*METHODS: The above 3 metrics can be strongly correlated with watershed size and with each other. To minimize that bias, the rankings of the residuals from a regression analysis were used, rather than simply the top-ranking watersheds, to identify the most "important" watersheds for each metric at each scale. That is, the watersheds were identified that were in the top 5% in terms of variety of mapped wetland types for watersheds of that size, the largest area of mapped wetlands as a proportion of the watershed area for watersheds of that size, and/or the greatest number of mapped wetland polygons for watersheds with that much wetland area.

ORBIC State/Global Status: Scale from 1 to 5. 1=critically imperiled, 2=imperiled, 3=rare, uncommon or threatened but no immediately imperiled, 4=not rare and apparentlysecure, 5=demonstrably widespread. A number preceded by a "T" means that it is the rank for the trinomial. A "Q"

B3: Stream Duration Assessment Method Forms

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name TABLE ROCK SUBSTATION	Assessor L CLEVELAND	
Address INTERSECTION OF HWY 234 & TRESHAM LANE, JACKSON COUNTY		Date 9-11-14
Waterway Name DITCH	Coordinates at downstream end (ddd.mm.ss)	Lat. 42° 28' 35.43" N
Reach Boundaries N/A ≈1250 FT WITHIN STUDY AREA		Long. 122° 57' 53.90" W
Precipitation w/in 48 hours (cm) Ø	Channel Width (m) ≈ 1.0	☐ Disturbed Site / Difficult Situation (Describe in "Notes")

Observed Hydrology

% of reach w/observed surface flow Ø

% of reach w/any flow (surface or hyporheic) Ø

# of pools observed Ø

Observations

Observed Wetland Plants (and indicator status):

NO WETLAND PLANTS OBSERVED.

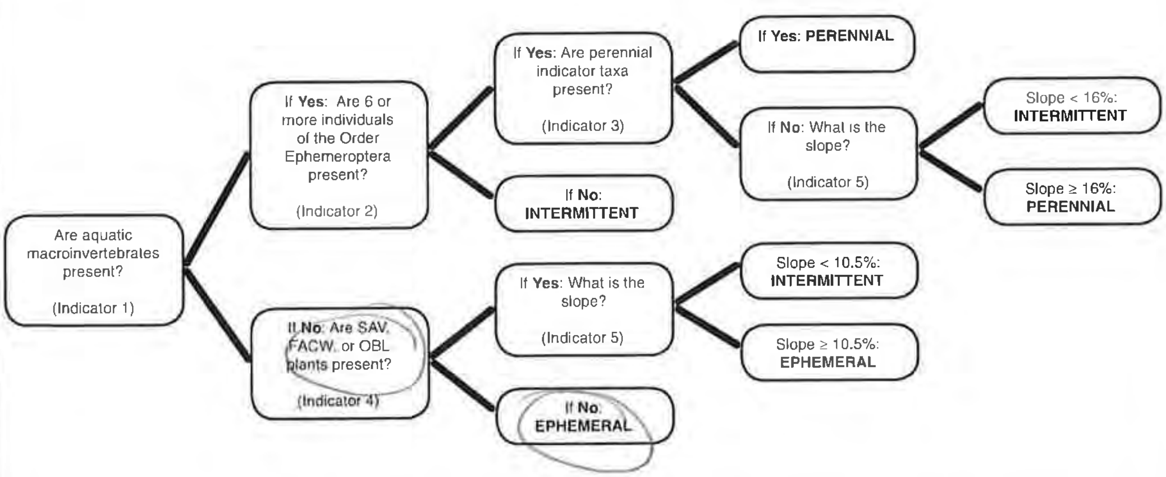
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemeroptera?	# of Individuals
NONE OBSERVED			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	1 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding: ☒ Ephemeral ☐ Intermittent ☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

- [ ] Prolonged Abnormal Rainfall / Snowpack
    - [ ] Below Average
    - [ ] Above Average
- [ ] Natural or Anthropogenic Disturbance
- [ ] Other: ______________________

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

N/A

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

WATERBODY IS A ROADSIDE DITCH, NO WATER OBSERVED AT TIME OF VISIT. TOPOGRAPHY INDICATES FLOW WOULD OCCUR WESTWARD TO ROCK CREEK A 1/4 MILE FROM EDGE OF STUDY AREA.

Ancillary Information:

- [ ] Riparian Corridor — NONE
- [x] Erosion and Deposition — HIGH FLOWS HAVE ERODED DITCHES & PERCHED 18" CULVERTS THROUGHOUT STUDY AREA
- [ ] Floodplain Connectivity — NONE

Observed Amphibians, Aquatic Snakes, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
N/A			

Appendix C

Ground Level Photographs

Photo Point 1: Upland area along southern boundary of study area looking south

Source: HDR, September 2014

Photo Point 1: Upland area along southern boundary of study area looking north

Source: HDR, September 2014

Photo Point 2 (SP-1): Upland area looking west

Source: HDR, September 2014

Photo Point 2 (SP-1): Upland area looking east

Source: HDR, September 2014

Photo Point 2 (SP-1): Upland area looking north

Source: HDR, September 2014

Photo Point 3 (SP-2): Upland area looking north

Source: HDR, September 2014

Photo Point 3 (SP-2): Upland area looking west

Source: HDR, September 2014

Photo Point 3 (SP-2): Upland area looking east

Source: HDR, September 2014

Photo Point 3 (SP-2): Upland area looking south

Source: HDR, September 2014

Photo Point 7 (SP-3): Upland area looking east

Source: HDR, September 2014

Photo Point 10 (SP-4): Upland area with pile of rocky debris looking southeast

Source: HDR, September 2014

Photo Point 11 (SP-4): Upland area with teasel covered berm looking west

Source: HDR, September 2014

Photo Point 14 (SP-7): Upland area adjacent to Wetland B looking south

Source: HDR, September 2014

Photo Point 14 (SP-7): Wetland/upland boundary of Wetland B looking west

Source: HDR, September 2014

Photo Point 14 (SP-7): Wetland/upland boundary of Wetland B looking north

Source: HDR, September 2014

Photo Point 15 (SP-10): Upland area adjacent to Wetland B looking west

Source: HDR, September 2014

Photo Point 15 (SP-10): Wetland B looking north

Source: HDR, September 2014

Photo Point 15 (SP-10): Upland area adjacent to Wetland B looking south

Source: HDR, September 2014

Photo Point 17 (SP-11): Wetland/upland boundary (approximate boundary shown) of Wetland B looking east

Source: HDR, September 2014

Photo Point 17 (SP-11): Wetland B looking west

Source: HDR, September 2014

Photo Point 17 (SP-11): Wetland/upland boundary (approximate boundary shown) of Wetland B looking south

Source: HDR, September 2014

Photo Point 19 (SP-14): Wetland C looking east

Source: HDR, September 2014

Photo Point 19 (SP-14): Wetland/upland boundary (approximate boundary shown) of Wetland C looking south

Source: HDR, September 2014

Photo Point 19 (SP-14): Wetland C looking west

Source: HDR, September 2014

Photo Point 20: Water-stained vegetation in Wetland B looking west

Source: HDR, September 2014

Photo Point 21: Artificial stock pond in Wetland B looking southeast

Source: HDR, September 2014

Photo Point 22 (SP-17): Upland area adjacent to Wetland B looking east

Source: HDR, September 2014

Photo Point 22 (SP-17): Wetland B looking south

Source: HDR, September 2014

Photo Point 23 (SP-18): Wetland B looking south

Source: HDR, September 2014

Photo Point 23 (SP-18): Wetland B looking west

Source: HDR, September 2014

Photo Point 23 (SP-18): Upland area adjacent to Wetland B looking east

Source: HDR, September 2014

Photo Point 24 (SP-24): Upland area looking north

Source: HDR, September 2014

Photo Point 24 (SP-24): Upland area looking south

Source: HDR, September 2014

Photo Point 25 (SP-25): Vegetative patch in upland area looking east

Source: HDR, September 2014

Photo Point 26 (SP-26): Upland area looking south

Source: HDR, September 2014

Photo Point 26 (SP-26): Upland area looking north

Source: HDR, September 2014

Photo Point 27 (SP-29): Upland area in southeast quadrant of study area looking north

Source: HDR, September 2014

Photo Point 27 (SP-29): Upland area in southeast quadrant of study area looking south

Source: HDR, September 2014

Photo Point 28: Upland area in southeast quadrant of study area looking north

Source: HDR, September 2014

Photo Point 30: Upland area along western boundary of study area looking north

Source: HDR, September 2014

Photo Point 30: Upland area along western boundary of study area looking south

Source: HDR, September 2014

Photo Point 31: Overview of study area looking southwest

Source: HDR, September 2014

Photo Point 32 (SP-28): Upland area adjacent to Wetland A looking south

Source: HDR, September 2014

Photo Point 32 (SP-28): Wetland/upland boundary (approximate boundary shown) of Wetland A looking north

Source: HDR, September 2014

Photo Point 33: Upland area looking northwest

Source: HDR, September 2014

Photo Point 34: Roadside ditch looking west

Source: HDR, September 2014

Photo Point 36: Roadside ditch looking west

Source: HDR, September 2014

Photo Point 37: Metal culvert in roadside ditch looking southeast

Source: HDR, September 2014

Photo Point 39: Roadside ditch looking west

Source: HDR, September 2014

Photo Point 40: Roadside ditch looking west

Source: HDR, September 2014

Photo Point 41: Artificial stock pond in Wetland B looking south

Source: HDR, September 2014

Appendix D

Additional Tables and Information

USDA Field Office Climate Data

WETS Station : MEDFORD ROGUE VLY AP, OR225 Creation Date: 10/06/2014
Latitude: 4223 Longitude: 12252 Elevation: 01297
State FIPS/County(FIPS): 41029 County Name: Jackson
Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.) avg daily max	avg daily min	avg	Precipitation (Inches) avg	30% chance will have less than	more than	avg # of days w/.1 or more	avg total snow fall
January	47.3	30.9	39.1	2.47	1.36	3.01	6	1.5
February	53.8	33.1	43.5	2.10	1.16	2.56	6	0.8
March	58.3	35.9	47.1	1.85	1.21	2.23	5	0.5
April	64.3	39.0	51.6	1.31	0.82	1.59	4	0.0
May	72.2	44.0	58.1	1.21	0.61	1.49	4	0.0
June	81.2	50.1	65.6	0.68	0.26	0.84	2	0.0
July	90.2	55.2	72.7	0.31	0.03	0.36	1	0.0
August	90.1	54.9	72.5	0.52	0.00	0.53	1	0.0
September	83.5	48.3	65.9	0.78	0.16	0.95	2	0.0
October	70.0	40.2	55.1	1.31	0.54	1.61	4	0.0
November	52.8	35.0	43.9	2.93	1.62	3.58	7	0.4
December	45.2	31.0	38.1	2.90	1.36	3.55	7	1.6
Annual	-----	-----	-----	------	15.53	20.59	--	----
Average	67.4	41.5	54.4	------	------	------	--	----
Average	-----	-----	-----	18.37	------	------	50	4.8

GROWING SEASON DATES

Probability	Temperature 24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	2/18 to 12/ 1 285 days	3/25 to 11/10 230 days	4/26 to 10/19 175 days
70 percent *	2/ 9 to 12/10 303 days	3/18 to 11/17 243 days	4/21 to 10/24 186 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

total 1911-2014 prcp

Station : OR225, MEDFORD ROGUE VLY AP
------- Unit = inches

yr	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	annl
11			M0.03	1.27	1.49	0.71	0.24	0.00	1.13	0.43	1.67	1.88	8.85
12	3.59	2.63	1.66	4.40	2.45	2.19	0.20	0.07	1.11	1.10	3.38	2.06	24.84
13	3.52	0.10	0.43	2.45	1.72	3.09	2.74	0.08	0.46	0.62	2.82	1.91	19.94
14	5.34	0.61	0.42	1.43	1.35	0.66	0.19	0.00	0.87	2.20	1.02	0.56	14.65
15	1.34	2.46	0.90	1.64	1.39	0.12	0.30	0.02	0.03	0.40	2.96	2.24	13.80
16	2.01	1.51	1.76	1.66	0.69	0.73	1.15	0.66	0.37	0.28	1.99	1.71	14.52
17	1.94	3.37	1.88	1.25	1.01	0.06	0.00	0.09	0.30	0.00	4.26	2.75	16.91
18	2.17	2.64	1.69	0.39	0.54	0.01	0.03	0.25	1.67	1.57	2.29	1.44	14.69
19	2.14	4.30	1.76	1.15	0.03	0.00	0.03	0.03	0.66	0.60	1.87	2.57	15.14
20	0.42	0.22	1.44	0.99	0.96	1.81	0.24	0.36	0.99	1.20	4.27	3.43	16.33
21	3.12	3.33	1.06	0.75	2.47	0.10	0.00	0.00	0.04	0.86	3.54	0.94	16.21
22	1.76	2.33	1.84	0.61	1.22	0.56	0.00	0.00	0.50	1.48	1.35	5.36	17.01
23	1.63	0.38	0.41	1.00	0.58	0.69	0.59	0.89	0.99	2.00	0.87	1.53	11.56
24	0.51	2.23	0.74	0.38	0.15	0.21	0.00	0.97	0.92	4.89	3.15	3.44	17.59
25	1.70	2.07	1.04	1.88	0.95	0.83	0.00	0.29	1.92	0.29	1.82	1.73	14.52
26	1.47	2.03	0.00	0.57	0.73	0.05	0.22	0.52	0.16	2.62	6.66	3.06	18.09
27	2.58	3.87	1.87	1.20	0.92	0.43	0.34	0.00	0.81	0.91	4.42	1.64	18.99
28	2.08	0.73	3.24	0.99	0.01	0.82	0.00	0.00	1.23	1.28	1.11	2.84	14.33
29	1.47	0.24	0.93	1.54	0.41	2.54	0.00	0.00	0.00	1.14	0.02	6.45	14.74
30	2.45	1.59	0.49	1.09	0.82	0.12	0.00	0.00	1.58	0.30	2.17	1.06	11.67
31	1.39	1.06	1.16	1.23	0.23	3.49	0.00	0.00	1.23	1.74	3.12	4.21	18.86
32	2.03	0.26	2.43	2.44	3.05	1.77	0.04	0.12	0.00	0.70	3.64	2.93	19.41
33	3.36	1.15	0.91	0.63	1.41	0.15	0.00	0.02	0.31	1.13	0.03	1.99	11.09
34	2.70	0.76	1.15	1.11	0.99	0.83	0.02	0.02	0.31	2.48	3.44	2.18	15.99
35	2.12	1.94	1.26	2.05	0.07	0.00	0.32	0.31	0.26	2.20	0.93	3.60	15.06
36	6.67	2.68	0.42	1.52	1.62	0.86	0.58	0.00	0.35	0.00	0.01	2.48	17.19
37	2.10	3.23	2.48	2.56	1.63	1.71	0.30	0.04	1.15	2.26	5.69	3.49	26.64
38	2.83	4.65	3.34	1.32	0.23	0.01	0.03	0.00	0.58	0.79	2.25	2.18	18.21
39	1.92	1.25	1.52	0.29	1.22	0.40	0.34	0.00	0.26	2.15	0.06	6.71	16.12
40	1.85	5.36	4.19	0.69	0.57	0.62	0.14	0.00	2.31	2.06	2.23	3.41	23.43
41	2.15	1.93	1.03	1.64	2.15	1.69	0.06	0.20	1.21	1.35	2.65	7.97	24.03
42	2.19	2.33	0.53	0.86	3.69	0.64	0.00	0.09	0.16	0.82	8.62	5.87	25.80
43	6.44	0.86	1.51	2.17	0.67	1.85	0.00	0.31	0.04	3.68	1.26	1.36	20.15
44	1.70	2.01	1.57	1.97	0.66	1.51	0.17	0.31	0.80	1.54	3.14	0.74	16.12
45	1.65	3.90	1.98	0.43	4.58	0.52	0.00	1.13	0.46	1.26	5.34	3.95	25.20
46	3.00	1.54	1.49	1.07	0.96	0.18	0.11	0.00	0.23	1.90	3.99	1.28	15.75
47	1.11	1.22	1.79	0.64	0.91	2.26	1.35	0.30	0.16	3.00	1.99	1.34	16.07
48	4.80	2.05	2.20	2.31	1.63	2.90	0.38	0.16	0.30	1.27	2.57	3.69	24.26
49	0.51	2.53	1.08	0.16	1.74	0.00	0.00	0.00	0.54	1.89	1.82	1.19	11.46
50	5.96	1.18	2.03	0.58	0.43	1.27	0.00	0.00	0.72	9.16	2.16	5.13	28.62
51	4.05	2.72	0.82	0.73	0.51	0.00	0.00	0.27	0.22	3.48	2.43	4.77	20.00
52	3.20	2.88	1.20	0.25	1.27	1.73	0.04	0.47	0.64	0.14	1.30	5.58	18.70
53	5.49	2.04	1.50	0.55	3.60	1.16	0.00	0.52	1.57	1.42	5.09	2.62	25.56
54	6.18	1.69	0.84	0.94	0.33	1.25	0.00	0.40	1.18	0.51	0.68	2.25	16.25
55	1.31	0.63	1.03	1.04	0.18	0.07	0.01	0.00	0.83	2.19	3.85	8.77	19.91
56	5.88	4.95	1.31	0.64	4.18	0.80	0.94	0.32	0.64	5.89	0.91	2.32	28.78
57	1.70	2.99	5.54	0.36	1.10	0.03	0.16	0.00	0.80	1.64	2.28	3.92	20.52
58	5.63	5.37	1.83	0.40	1.01	2.72	1.35	0.14	0.28	0.42	1.63	2.51	23.29
59	1.99	2.78	0.88	0.59	1.40	0.27	0.00	0.28	0.29	0.61	0.16	1.17	10.42
60	2.35	4.12	4.40	0.67	1.97	0.00	0.09	0.03	0.18	0.38	4.70	1.71	20.60
61	1.12	2.74	3.05	0.96	1.86	0.34	0.10	0.15	0.93	2.38	3.42	2.60	19.65
62	1.69	1.05	1.55	0.81	0.80	0.15	0.00	1.00	0.76	6.27	4.37	4.68	23.13
63	1.75	2.47	0.88	2.25	2.23	0.92	0.15	0.26	0.26	1.40	5.25	1.05	18.87
64	5.60	0.21	2.70	0.37	0.82	0.79	0.97	0.10	0.15	0.90	3.75	12.72	29.08
65	4.30	0.70	0.41	3.07	0.31	1.05	0.03	1.52	0.00	0.46	2.56	3.71	18.12
66	4.80	0.37	1.70	0.45	0.20	0.37	1.63	0.19	1.88	0.76	5.89	2.80	21.04
67	5.44	1.14	2.08	1.72	0.96	0.27	0.00	0.00	0.28	2.34	1.04	3.40	18.67
68	1.86	2.95	0.90	0.38	1.05	0.06	0.00	1.33	0.32	0.62	3.04	2.78	15.29
69	6.16	1.46	0.29	0.60	1.62	1.31	0.02	0.00	0.62	2.46	0.49	5.44	20.47
70	6.19	1.70	1.13	1.44	0.34	0.59	0.00	0.34	0.22	1.39	6.57	3.36	23.27
71	3.68	1.43	2.72	1.34	1.13	0.97	0.07	0.28	1.24	0.61	3.43	2.45	19.35
72	3.55	2.49	3.62	0.94	1.61	1.59	0.00	0.36	0.52	1.21	1.50	3.23	20.62
73	1.98	0.54	1.58	0.76	0.45	0.06	0.04	0.03	0.64	2.79	7.01	3.02	18.90
74	4.32	2.78	3.26	1.70	0.22	0.00	0.10	0.00	0.00	1.17	1.13	3.91	18.59
75	2.64	2.64	3.97	1.27	0.24	0.38	0.22	0.54	0.65	2.21	1.85	2.74	19.35
76	1.62	2.21	1.13	1.67	0.11	0.04	0.84	2.83	0.90	0.18	0.43	0.36	12.32
77	1.17	0.67	1.12	0.81	2.37	0.53	0.23	0.36	4.22	0.96	4.91	4.81	22.16
78	1.53	2.45	2.03	1.26	1.59	1.02	0.54	1.46	1.68	0.01	1.50	0.66	15.73
79	2.81	1.54	0.83	2.24	1.42	0.55	0.02	0.63	0.32	3.98	3.17	2.73	20.24
80	2.59	1.78	1.27	1.75	0.69	1.22	0.02	0.00	0.18	1.52	2.28	2.59	15.89
81	0.54	1.72	1.23	0.55	1.17	0.47	0.41	0.00	0.52	1.23	6.05	8.02	21.91
82	1.43	3.64	2.30	0.87	0.00	0.85	0.07	0.03	0.97	1.60	2.17	5.31	19.24
83	0.92	5.67	3.21	1.12	0.81	0.66	0.59	2.21	2.05	1.21	4.97	6.73	30.15
84	0.19	2.50	2.05	1.11	0.39	0.79	0.16	0.40	0.51	1.93	6.56	1.96	18.55
85	0.23	1.58	1.22	0.39	1.00	0.37	0.00	0.02	1.53	1.50	2.02	0.83	10.69
86	1.99	5.22	1.02	0.23	1.19	0.45	0.00	0.00	2.31	1.49	2.45	0.72	17.07
87	2.89	2.24	1.34	0.45	0.95	0.12	1.34	0.00	0.00	0.00	1.68	3.77	14.78
88	2.53	0.20	0.57	1.07	1.51	1.04	0.00	0.02	0.22	0.12	5.14	1.28	13.70
89	2.33	0.78	3.94	2.42	1.01	0.16	0.00	0.41	1.94	0.71	0.71	0.68	15.09
90	2.94	1.06	1.49	0.82	1.86	0.17	0.11	0.99	0.13	1.29	1.52	1.12	13.50

91	1.55	1.73	2.42	1.07	1.84	0.68	1.10	0.22	0.00	0.39	2.42	1.08	14.50
92	0.84	0.63	0.42	1.10	1.30	2.62	0.58	0.00	0.06	2.37	1.54	3.52	14.98
93	2.65	1.37	1.25	1.83	2.63	1.23	0.66	1.21	0.00	0.66	0.68	2.43	16.60
94	1.06	1.21	1.35	0.58	0.57	0.12	0.21	0.00	0.83	0.46	4.64	1.07	12.10
95	3.76	0.40	2.63	2.49	0.54	1.54	1.17	0.00	0.12	0.20	1.26	7.66	21.77
96	5.44	2.96	1.55	1.30	2.89	0.22	0.30	0.08	0.49	2.20	4.04	9.94	31.41
97	3.44	1.11	1.00	1.98	1.09	1.42	0.02	1.39	0.83	2.19	2.10	1.36	17.93
98	4.78	3.27	2.73	2.25	4.26	0.67	0.00	0.00	0.05	1.81	7.67	1.23	28.72
99	3.65	4.32	0.81	0.44	0.66	0.00	0.04	2.03	0.00	1.72	1.94	0.89	16.50
0	5.00	2.76	1.52	3.59	0.75	0.43	0.58	0.07	0.38	1.51	1.24	0.98	18.81
1	1.00	0.82	1.55	1.15	0.40	0.38	0.19	0.03	0.79	0.19	4.16	4.35	15.01
2	1.59	1.65	1.33	1.49	0.53	0.03	0.08	0.00	0.53	0.16	3.42	7.19	18.00
3	2.48	1.74	2.52	3.53	0.86	0.00	0.00	0.76	0.86	0.05	2.38	4.66	19.84
4	2.98	3.35	1.27	0.75	1.27	0.18	0.00	0.52	0.04	2.90	1.70	4.13	19.09
5	1.60	0.30	1.77	2.16	2.97	0.68	0.07	0.00	0.48	0.39	5.93	7.07	23.42
6	5.12	1.94	2.19	1.26	1.51	0.81	0.00	0.00	0.06	0.38	3.78	4.75	21.80
7	1.66	3.57	0.97	1.34	0.27	0.20	0.62	0.23	0.59	2.06	2.81	2.78	17.10
8	3.77	0.54	1.85	0.69	1.20	0.09	0.00	0.04	0.01	0.40	2.29	2.93	13.81
9	1.52	0.91	1.57	0.35	2.18	1.14	0.00	0.38	0.08	0.65	1.22	1.81	11.81
10	2.77	1.03	2.10	2.92	1.53	1.00	0.00	0.86	0.79	2.06	1.94	4.31	21.31
11	1.73	1.23	4.26	2.12	2.20	0.69	0.60	0.00	0.01	0.65	1.99	0.94	16.42
12	2.76	2.19	3.72	1.92	1.10	2.36	0.07	0.00	0.00	1.96	5.13	5.66	26.87
13	0.96	0.49	0.56	1.04	0.69	0.39	0.00	0.42	2.76	0.20	1.12	0.36	8.99
14	0.78	4.55	3.50	0.82	0.47	0.54	0.10	0.63	2.04	M0.00			13.43

Appendix E

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Attachment A-2:

Supplemental Wetland Delineation Update Memo

Memo

Date:	Tuesday, September 08, 2015
Project:	Sam's Valley Reinforcement Project
To:	Lauren Brown, DSL; John Aniello, Brian King, Jordon Messinger; PacifiCorp,
From:	Mike Witter, Matt Hutchinson, HDR
Subject:	Wetland Delineation Report Update

1.0 Introduction

This memorandum was written to amend data that were originally presented in the Wetlands and Waters Delineation Report prepared by HDR, dated April 20, 2015. This original report was reviewed by Ms.Lauren Brown, Jurisdiction Coordinator at the Oregon Department of State Lands (ODSL). In an email dated July 9, 2015, Ms. Brown provided initial feedback to HDR on the draft report with following comments:

1. Soil pits were not deep enough to determine the presence or absence of hydric soil and hydrology indicators (especially for a September determination).
2. Sample plot 19 is mapped as upland, however, the data sheet is wet.
3. The Arid West Supplement and Arid plant lists are more applicable to the Rogue Valley.

Following this feedback, HDR scheduled a meeting with Ms. Brown to go over her comments and get any additional insight prior to initiating follow-up field work. Mike Witter and Matt Hutchinson from HDR met with Ms. Brown on July 30, 2015. In order to validate the delineated wetland boundary, Ms. Brown has requested that HDR reevaluate certain soil pits that were part of wetland data plots at the site where investigators were unable to dig down to the required depths to support the soil determination conclusions. At the meeting, we specifically targeted upland soil pits at SP#4, #17, #20, #24, and #26. These soil pits were determined to be in upland, largely based on observed soil conditions; but the soil profiles analyzed were not deep enough (12-inches) to support those conclusions according to ODSL.

At the July 30 meeting Ms. Brown also indicated that more data would be useful for two portions of the site, in order to support the wetland determinations in these areas. These two areas were near photo point #p23 and in the vicinity of soil pits #24 and #25.

Ms. Brown was correct in her observations concerning Sample Plot #19, but this was because the numbers for Sample Plot #18 and #19 had been transposed in the original report. Sample Plot #18 was intended as the upland plot, and #19 was to represent the wetland side of the boundary. Ms. Brown's comment was incorporated in the revised map so that Sample Plot #19 represents a wetland plot.

2.0 Methods

To address additional data needs, HDR conducted an additional field visit on September 1 and 2, 2015. The existing sample plot locations were loaded into a hand-held Trimble GPS receiver capable of sub-meter accuracy, and field crews used these coordinates to navigate to the suspect locations. Pits were excavated with a combination of a shovel and a 3-inch bucket auger, but a pick-axe was required in some areas to excavate these soils to the required depth. A total of eight soil pits were sampled during the September 2015 field visit. Of these, seven soil pits were dug next to the previous sample plots that had been excavated to insufficient depths (between 8 and 14 inches) during the original survey. Additionally, one new sample plot was collected in an area that had not been sampled during the original visit, but appeared to have the potential to be a wetland, based on aerial photos.

New sample plots were excavated to depths of 15-24 inches, no more than 13 feet away from the original sample plot. Previously recorded indicators for vegetation, soil, and hydrology were reviewed for accuracy at each sample plot. For ease of comparison, newly sampled soil profiles were recorded for each pit on their original data forms, which are included as an attachment to this memo.

3.0 Results

Data collected at the updated sample plots confirmed all of the original findings for vegetation, soil, and hydrology indicators. There were no changes in the findings for vegetation and hydrology indicators at any of the sample plots that were revisited. Although some of the soil profiles had minor differences, such as subtle changes in matrix colors or redox percentages, these minor differences did not change the hydric soil indicator outcomes. Table 1 provides a summary of updated sample plot findings. Detailed soil profile data can be found in the attached data forms.

Using the Arid West Regional Supplement for this delineation (as suggested by ODSL during their initial review) would not affect the results of this wetland delineation. When comparing the wetland indicator status for plant species found to dominate these plots, HDR found that some of the indicators were different, but the conclusions as to whether the plant communities were hydrophytic or not did not change. Also the soil and hydrology indicators were slightly different, but none of these differences would have changed any of the wetland determination conclusions.

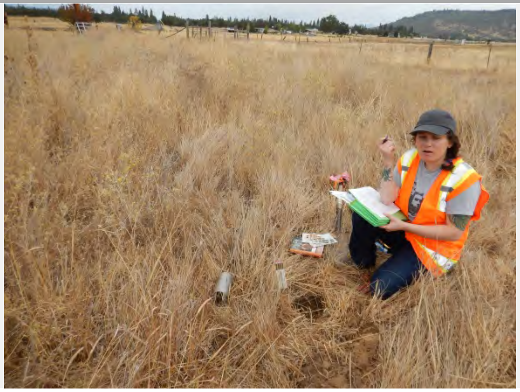
Table 1: Updated Sample Plot Soils

Sample Point	Associated Wetland/Waterbody	Original Excavation Depth (inches)	Updated Excavation Depth (inches)	Original Soil Indicators	Updated Soil Indicators	Photo
SP-4	Upland	9	20	No hydric soil indicators present	No hydric soil indicators present	
SP-16	Wetland B	9	20	F6-Redox Dark Surface	F6-Redox Dark Surface	

Sample Point	Associated Wetland/Waterbody	Original Excavation Depth (inches)	Updated Excavation Depth (inches)	Original Soil Indicators	Updated Soil Indicators	Photo
SP-17	Wetland B	8	16	No hydric soil indicators present	No hydric soil indicators present	
SP-19	Wetland B	14	19	F6-Redox Dark Surface	F6-Redox Dark Surface	

Sample Point	Associated Wetland/Waterbody	Original Excavation Depth (inches)	Updated Excavation Depth (inches)	Original Soil Indicators	Updated Soil Indicators	Photo
SP-20	Wetland B	12	16.5	No hydric soil indicators present	No hydric soil indicators present	
SP-24	Upland	8	15	No hydric soil indicators present	No hydric soil indicators present	

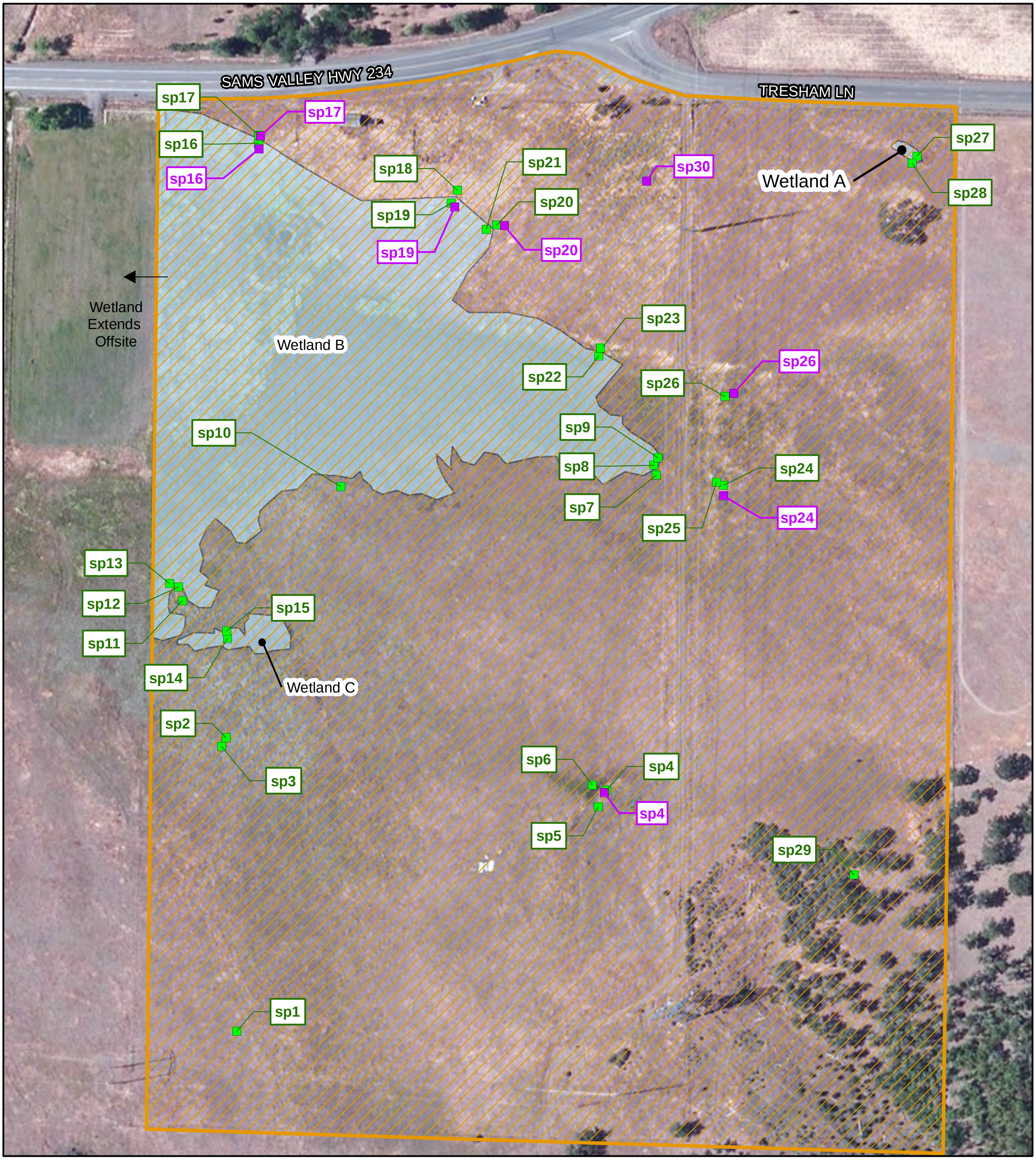
Sample Point	Associated Wetland/Waterbody	Original Excavation Depth (inches)	Updated Excavation Depth (inches)	Original Soil Indicators	Updated Soil Indicators	Photo
SP-26	Upland	12	24	No hydric soil indicators present	No hydric soil indicators present	
SP-30 (new)	Upland	n/a	18	n/a	No hydric soil indicators present	

Sample Point	Associated Wetland/Waterbody	Original Excavation Depth (inches)	Updated Excavation Depth (inches)	Original Soil Indicators	Updated Soil Indicators	Photo
SP-30 (new)						

4.0 Conclusion

The largest wetland at the site, Wetland B, appears to be supported by surface saturation due to runoff from the mostly undeveloped landscape nearby. The clay loams that pervade the area are very dense and do not allow for rapid interchange with deeper water-bearing layers, even though they may exist. Hydric soils observed at the site contained a relatively high abundance of redoximorphic features within the upper part of the soil, and upland soils had little or no redoximorphic features. These conclusions are supported in the soil observed within the sample plots conducted at the site.

Attachment A: Wetland Delineation Amendment

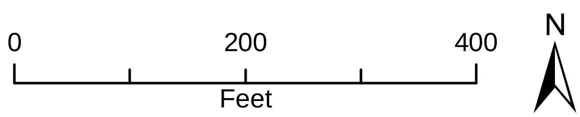


Aerial Image Date: 6/28/2010

Original Sample Plot
Updated Sample Plot
Study Area
Delineated Wetland

Wetland Delineation Amendment Map

Figure 1



HDR

*Data plot locations, wetland boundaries were recorded using a resource grade Trimble GeoXH 6000 Global Positioning System (GPS). Mapping accuracy of the unit is 50 cm (1.64 feet) using post-processed differential data correction (DGNSS). GPS data was post-processed and corrected after data was downloaded.

Sam's Valley | PacifiCorp