LOWELL LOCAL WETLANDS INVENTORY REPORT

APPROVED LOCAL WETLANDS INVENTORY
12/21/2011 LM
OREGON DEPARTMENT OF STATE LANDS

Prepared for

Lane Council of Governments &
City of Lowell

Revised October 2012

ESA Adolfson

Errata Sheet for the **Lowell Local Wetlands Inventory Report**, Completed October 31, 2012

The original report was completed in October 2011, and approved by the Department of State Lands (DSL) on December 21, 2011. In September 2012, the Lane Council of Governments (LCOG) contacted DSL regarding questions asked by the City of Lowell about how determinations were made for Locally Significant Wetlands (LSW). In response, DSL reviewed the wetland assessment results used to make the original LSW determinations [using the Oregon Freshwater Assessment Methodology (OFWAM)] and produced the following corrections to revise portions of the original Lowell report.

Page	**Section**	**Change**
Pg. 6	3.5 Overview of the Oregon Freshwater Wetland Assessment Methodology	Identified a new method to identify water quality limited streams
Pg. 9	4.6 OFWAM Results	Essentially, the OFWAM results were reviewed and revised. The original total of 11 LSWs was reduced to 4. The original and the revised versions of the table that presented the results (Table 2) are included below to show how the OFWAM results were revised.
Pg. 10	4.7 Locally Significant Wetlands (LSWs)	The text in this paragraph was revised to reflect the changes in Table 2.
Appendix D	OFWAM Results	The revised OFWAM results were recorded in all the appropriate sections. A new wetland characterization – watershed setting sheet was not completed for the Fall Creek Subwatershed, but the wetlands in this sub basin were evaluated using the information from that subwatershed as opposed to the Dexter Lake Subwatershed.
Appendix F	Lowell Local Wetlands Inventory Map	A revised LWI map was prepared by LCOG to reflect the new LSW determinations

Table 2. OFWAM Results for Wetlands in the Lowell Study Area

(Original version included in the LWI report dated October 2011 and approved by DSL on December 21, 2011.)

Wetland Assessment Unit / Wetland Code	Wildlife Habitat	Fish Habitat Streams	Fish Habitat Ponds	Water Quality	Hydrologic Control	LSW?
1	Limited	Impacted	N/A	**Intact**	Impacted	**Yes**
2a-d	Limited	Impacted	N/A	**Intact**	**Intact**	**Yes**
3	Limited	N/A	N/A	Impacted	Not Present	No
4	Limited	Impacted	N/A	**Intact**	**Intact**	**Yes**
5	Limited	Impacted	N/A	Impacted	**Intact**	**Yes**
6	Limited	N/A	N/A	Impacted	**Intact**	**Yes**
7	**Diverse**	N/A	Impacted	Impacted	**Intact**	**Yes**
8	**Diverse**	N/A	**Intact**	Impacted	**Intact**	**Yes**
WD1993-0106-1 & 2	Limited	Impacted	N/A	Impacted	**Intact**	**Yes**
WD1994-0067	Limited	N/A	N/A	Impacted	Impacted	No
WD1996-0016-1 & 2; WD2008-0030	Limited	Impacted	N/A	Impacted	**Intact**	**Yes**
WD1997-0473-1	Limited	N/A	N/A	Impacted	Impacted	No
WD1997-0473-2	Limited	Impacted	N/A	Impacted	Impacted	No
WD1999-0201	Limited	Impacted	N/A	Impacted	Impacted	No
WD2008-0618-1	Limited	Impacted	N/A	**Intact**	**Intact**	**Yes**
WD2008-0618-2 to 4	Limited	N/A	N/A	Impacted	Impacted	No
WD2009-0442	**Diverse**	N/A	Impacted	Impacted	**Intact**	**Yes**

***** Note: Responses in **bold** qualify the resource for designation as locally significant.

Table 2. OFWAM Results for Wetlands in the Lowell Study Area

(Revised version of table completed in October 2012 and revised portions are shown in red. The other wetland findings were not changed so the DSL approval date remains December 21, 2011.)

Wetland Assessment Unit / Wetland Code	Wildlife Habitat	Fish Habitat Streams	Fish Habitat Ponds	Water Quality	Hydrologic Control	LSW?
1	Limited	Impacted	N/A	Impacted	Impacted	No
2a-d	Limited	Impacted	N/A	Impacted	**Intact**	**Yes**
3	Limited	N/A	N/A	Impacted	Not Present	No
4	Limited	Impacted	N/A	Impacted	Impacted	No
5	Limited	Impacted	N/A	Impacted	Impacted	No
6	Limited	N/A	N/A	Impacted	Impacted	No
7	**Diverse**	N/A	Impacted	Impacted	**Intact**	**Yes**
8	**Diverse**	N/A	**Intact**	Impacted	Not Present	**Yes**
WD1993-0106-1 & 2	Limited	Impacted	N/A	Impacted	Impacted	No
WD1994-0067	Limited	N/A	N/A	Impacted	Not Present	No
WD1996-0016-1 & 2; WD2008-0030	Limited	Impacted	N/A	Impacted	Impacted	No
WD1997-0473-1	Limited	N/A	N/A	Impacted	Impacted	No
WD1997-0473-2	Limited	N/A	N/A	Impacted	Impacted	No
WD1999-0201	Limited	Impacted	N/A	Impacted	Not Present	No
WD2008-0618-1	Limited	Impacted	N/A	Impacted	Impacted	No
WD2008-0618-2 to 4	Limited	N/A	N/A	Impacted	Impacted	No
WD2009-0442	**Diverse**	N/A	Impacted	Impacted	Impacted	**Yes**

***** Note: Responses in **bold** qualify the resource for designation as locally significant.

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1.0 INTRODUCTION

1.1 Overview of the Inventory Process

A local wetlands inventory (LWI) is a planning and regulatory tool used by local governments and landowners. It provides a snapshot of the wetland resources located in a community to assist in the management of these resources as well as aiding in urban planning and development. Similarly, a riparian inventory is a planning tool that assesses the land immediately adjacent to water resources such as lakes, rivers, and streams. Statewide Goal 5 (Natural Resources) requires local governments in Oregon to inventory wetlands and riparian areas in order to protect locally significant resources while balancing the needs of growth and development.

The Lane Council of Governments (LCOG) coordinated local wetlands inventories and supported several local governments in developing the related policy to address the water resources identified in the inventory process. Environmental Science Associates (ESA) prepared this LWI and riparian inventory for the City of Creswell. The LWI process and results are described in this report with the riparian inventory and assessment located in Appendix A.

The Oregon Freshwater Wetland Assessment Methodology (OFWAM) was used to develop the Creswell LWI. Communities throughout Oregon that have gone through a process of designating Locally Significant Wetlands (LSWs) have uniformly done so using OFWAM results as the primary input, and most have also followed the designation criteria in OAR 141-086-0350 that are linked to OFWAM results.

Staff members that participated in the Lowell LWI include wetland scientists and support staff from ESA; John Gordon, Sarah Hartung, Alison Sigler, Mike Leech, and Teresa Vanderburg as well as local wetland scientists Loverna Wilson, Nancy Holzhauser, and Paul Adamus. All field staff received training in LWI standards and guidelines as outlined by the State of Oregon administrative rules (OARs). Refer to Appendix B for a complete list of staff qualifications and experience.

1.2 Public Involvement

Public involvement is a required element in the LWI development process. LCOG, as the local government entity, organized the public involvement efforts for this project. LCOG facilitated an informational meeting for city officials in Harrisburg on January 21, 2010. This meeting was attended by officials from Creswell, Cottage Grove, Lowell, and other cities that are planning to conduct an LWI under LCOG's sponsorship. ESA was also at the meeting.

Letters explaining the project and seeking access permission were sent to all property owners whose tax lots intercepted hydric soil layers and/or National Wetlands Inventory

(NWI)-mapped wetlands and streams, or whose tax lots showed soil saturation (darker areas) indicative of wetlands in the aerial photographs. ESA requested access to 99 parcels within the study area and were granted access to 32 parcels (including eight parcels owned by the City of Lowell), which is a permission rate of 32 percent.

The public kick-off meeting was held in Lowell on February 17, 2010, from 7:00 p.m to 9:00 p.m. at the Lowell Grange, 51 East 2nd Street. Sixteen members of the public attended the meeting. The LWI results were presented at the same location in April 2011.

2.0 STUDY AREA DESCRIPTION AND LANDSCAPE SETTING

The City of Lowell is situated on the north side of Dexter Lake at the eastern edge of the Willamette Valley approximately 21 miles southeast of Eugene, Oregon (Figure 1, Appendix C). Dexter Lake is an artificially created reservoir on the Middle Fork Willamette River. Lowell's urban area is in a valley surrounded by foothills of the Western Cascade Mountains. The Willamette National Forest is seven miles to the east.

The study area is approximately 905 acres and includes the current Urban Growth Boundary (UGB) in addition to approximately 148 acres of rural land to the north and 195 acres of Dexter Lake. Two sub-watersheds overlap with the study area: Dexter Lake Basin and Fall Creek Basin. A majority of the study area occurs in the Dexter Lake Basin, which has an overall southern aspect. The Fall Creek Basin is located in the northern portion of the study area which has a northern aspect. Both basins lie within the Middle Fork Willamette Watershed, US Geological Survey eighth field hydrologic unit code 17090001.

The study area terrain is mostly flat where the town is located and has slopes of 5 to 15 percent in the surrounding hills. The elevation ranges between 700 to 1200 feet, with an average elevation of 850 feet (Google Earth, 2010). The surrounding hillsides, which include land outside of the UGB, consist of fragmented forests, agricultural parcels, and low-density residential development. The forests are dominated by Douglas fir with a few Oregon white oaks and ponderosa pine. Vegetation of the agricultural parcels, some of which are actively grazed, is mostly pasture grasses such as meadow foxtail and tall fescue.

Within Lowell's UGB, land use is primarily residential with some commercial developments. Several light industrial developments are located in the northwest corner of the study area. Several hillside areas have been cleared and graded within the past few years in preparation for new housing developments.

Land use along Dexter Lake consists of natural parks, residential areas, and a section of developed waterfront. The riparian area near the lake is flat and dominated by black cottonwood and red alder trees. The edges of the shoreline and Dexter Lake are mapped within the 100-year floodplain (FEMA, 1999). Refer to the OFWAM Watershed

Characterization Sheet in Appendix D for more information about the Lowell study area's contributing watershed.

Weather in and around Lowell consists of cool, wet winters and hot, dry summers, typical of the Willamette Valley physiographic province. Summers tend to be slightly hotter and dryer in the southern valley compared to the rest of the Willamette Valley (Franklin and Dyrness, 1988). Lowell has the highest elevation of the three study areas and experiences cooler temperatures and more precipitation.

3.0 METHODS

The LWI inventory process is described in OAR 141-086-0210. Methods used to inventory wetland resources in Lowell are in conformity with these state rules.

3.1 Preliminary Mapping and Research

LCOG compiled preliminary wetland maps and identified potential wetlands based on wetlands mapped by the National Wetland Inventory (NWI). LCOG also digitized wetland delineations obtained from the Oregon Department of State Lands (DSL). ESA reviewed the preliminary wetland maps to determine if additional wetlands may be present. ESA staff used NWI mapping (Figure 2, Appendix C), soil survey maps (Figure 3, Appendix C), topographic mapping (Figure 4, Appendix C), and aerial photographs to identify potential wetlands. Potential wetlands included areas of inundation and photographic signatures depicting drainages or vegetation patterns that could be indicative of wetland conditions. ESA submitted these potential wetlands to LCOG for inclusion in the preliminary maps.

ESA identified and recommended tax lots to which access should be requested. LCOG requested access to those tax lots and indicated on the preliminary maps those lots to which access was granted.

3.2 Review of Existing Information

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands at the study areas:

- Geographic Information Systems (GIS) layers of:
    - Aerial digital imagery (LCOG, 2010);
    - Rivers and streams (LCOG, 2010);
    - City zoning (LCOG, 2010);
    - Tax lot access permissions (LCOG, 2010); and
    - Elevation contours (LCOG, 2010).

- Oregon Department of State Lands (DSL) existing wetland delineations/determinations (various citations);
- National Wetlands Inventory (NWI), (U.S. Fish and Wildlife Service, 2009); and
- Soil Survey of Lane County Area, Oregon, Central Part (Patching, 1987).

3.3 Wetland Determinations

Wetland determinations were made for all wetlands based on either on-site or off-site investigations, depending on access permission.

3.3.1 On-site Determinations

For parcels with access permission, on-site determinations were made according to the US Army Corps of Engineers (Corps) 1987 Manual (Environmental Laboratory, 1987), and the Western Mountains, Valleys, and Coast Regional Supplement to the manual (Corps, 2010). Determinations were made on parcels that were judged to have wetlands or probable wetlands based on preliminary mapping and research efforts. Sample plots were established to document typical vegetation, soil, and hydrology characteristics and to determine the approximate location of the wetland boundary.

3.3.2 Off-site Determinations

ESA did not enter properties where property owners denied access. For those parcels, off-site wetland determinations were made by observing site characteristics from adjacent public rights-of-way (e.g. streets or sidewalks) or from adjacent parcels with access permitted. In some cases, this was done with the aid of binoculars. Field observations of hydrology and vegetation were assessed in combination with existing data such as published soil survey data, NWI maps and/or known DSL delineations, landscape setting and staff experience. Field observations for off-site determinations are presented on DSL data sheets even though no sample plot was established on the parcel. For parcels that were not visible from public rights-of-way, determinations were made by analysis of current aerial photographs and other existing data compiled for the LWI as well as the biologist's experience with similar conditions.

3.4 Field Mapping and Data Collection

All field data were collected and recorded using Trimble Yuma, Global Positioning System/Geographic Information System (GPS/GIS) data recorders. Aerial imagery and shapefiles of the study area were loaded onto the units for reference in the field. The GPS/GIS units enabled field crews to digitize wetland boundaries in ArcPad; edit existing wetland boundaries as necessary; map probable wetlands, other waters, and locations of sample plots; and map streams. Other information recorded on the GPS/GIS units includes field notes and wetland delineation/determination data on digital data sheets.

After the field work, data were uploaded onto a desktop computer for viewing and final editing.

3.4.1 Wetlands

Wetland boundaries were mapped per Oregon Administrative Rules (OAR) rules with an accuracy target of plus or minus16.4 feet on sites with access permitted (OAR 141-086-0210).

Wetlands were coded sequentially with unique numbers, generally from north to south in the study area. Newly coded wetlands that extend beyond the study area boundary were digitized to reflect only the area within the study limits.

Wetlands on file with DSL were identified with their existing delineation/determination number (such as WD 1996-0016). In many cases, multiple wetlands were delineated at one time and have the same DSL file number. To create unique codes for each wetland for the OFWAM assessment, the delineation number was used in combination with a unique number such as WD 1996-0016-1, -2. These unique numbers allowed each wetland to be assessed separately, if necessary, for OFWAM.

Each DSL wetland delineation within the study area was field verified and edited if the current size appeared different from the recorded size. If a DSL wetland no longer existed, it was deleted from the wetland polygon layer. Delineations on file that were less than 1/10 acre and not hydrologically connected to other wetlands were mapped as a probable wetland (see Section 3.4.2 below).

If a wetland was bisected by a road or other feature but had a hydrologic connection with other sections of wetland, the wetland numeric code was given a letter, such as 2a, 2b to indicate that both polygons were part of the same assessment unit for OFWAM. If a wetland contained more than one Cowardin class of 0.25 acre or more, another polygon was drawn to represent this on a map.

3.4.2 Sample Plots and Wetland Points

Sample plots, "SP #," were established for each wetland (except wetlands on file with DSL) and for areas with wetland characteristics. A minimum of one sample plot was established per wetland. In cases where there were many wetlands within a small area and the wetlands exhibited similar wetland characteristics, one sample plot was established to represent the area. More than one sample plot was established in large wetlands to increase the accuracy of the wetland boundary. Sample plot information was recorded on wetland determination data forms, which are located in Appendix E.

Wetlands with an estimated total area of 1/10 acre or less within the study area were digitized as a point and recorded as a "PW" or probable wetland.

3.4.3 Streams

Intermittent and perennial streams were field verified and mapped using the GPS/GIS units to record any deviations from the existing rivers and streams layer provided by LCOG. A stream was visually confirmed based on observations of a channel and banks. No formal determination of the ordinary high water mark of a stream was made. If portions of a stream channel were not accessible, either due to lack of access permission or lack of visibility from rights-of-way, then the stream line was digitized to represent what could be seen in the field. The stream data recorded in the field were merged with the existing river/stream layer data in ArcMap to provide an updated map of drainages within the study area. Roadside ditches were not mapped. Channelized streams (ditches with base flow or realigned channels) were mapped based on field observations.

3.5 Overview of the Oregon Freshwater Wetland Assessment Methodology

The Oregon Freshwater Wetland Assessment Methodology (OFWAM) was developed to qualitatively assess the functions of wetlands. OFWAM was designed for planning and educational purposes and is not intended to be a detailed evaluation of individual wetlands (Roth et al., 1996). The application of OFWAM aids in the determination of Locally Significant Wetlands.

Wetlands with a hydrologic connection were assessed as a single unit for OFWAM. Wetlands that occur in close proximity to each other (separated by 50 feet or less) and that have the same HGM class were also assessed as one unit for OFWAM. For example WD 1993-0036-1 and -2 were assessed as one wetland complex because they occur approximately 50 feet apart (or less) and are both palustrine, forested wetlands fed by surface water.

The assessment methodology consists of a series of wetland characterization questions that provide an understanding of four types of functions for each wetland: 1) wildlife habitat, 2) fish habitat in streams and/or ponds, 3) water quality, and 4) hydrologic control. The wildlife habitat function is scored as either: 1) providing diverse wildlife habitat, or 2) providing limited/some wildlife habitat. The fish habitat, water quality, and hydrologic functions are scored as either: 1) intact, 2) impacted or degraded, or 3) not present. A majority of OFWAM was completed in the field but some office research prior to field work was required. OFWAM results and data sheets for Lowell are located in Appendix D. Water quality conditions of water resources within the study area were based on data obtained from the Oregon Rapid Wetland Assessment Protocol tool on the Oregon Explorer website (ORWAP).

3.5.1 Urban vs. Rural

Several OFWAM questions distinguish between rural and urban areas and answers may differ depending on the current land use. For the LCOG Local Wetland Inventory, all

wetlands were assumed to be in an urban setting because the study areas are trending toward urban conditions and are in close proximity to the city centers.

3.6 Wetlands of Special Interest for Protection

Each wetland was assessed according to 10 questions in OFWAM to determine whether it qualifies as a Wetland of Special Interest for Protection. These questions are regarding the presence of Federal or State listed threatened, endangered or sensitive species, existing management plans, conservation plans, protected mitigation areas, critical habitat, wetland reserve areas and the presence of uncommon wetland plant communities in Oregon. A "yes" answer to any of the 10 questions qualifies the wetland for consideration as a Wetland of Special Interest. Data sources reviewed to determine the presence of sensitive and listed species include: 1) database search of the Oregon Biodiversity Information Center (ORBIC, 2010); 2) Species lists from USFWS for Lane County; 3) ODFW fish distribution maps; and 4) NMFS critical habitat listings.

3.7 Locally Significant Wetlands

Locally Significant Wetlands provide important functions and exhibit characteristics that are important for community planning decisions. The determination of Locally Significant Wetlands requires an LWI and an OFWAM assessment of each wetland identified within the study area.

Criteria used to determine Locally Significant Wetlands include (but are not limited to) wetlands with either a "diverse" wildlife function or "intact" hydrologic control, water quality or fish habitat function rating using OFWAM. Wetlands can also qualify as locally significant if they are within a quarter mile of a 303(d) listed water resource. Wetlands identified as having rare and/or unique native plant communities, or are known to be inhabited by federal and/or state threatened or endangered listed species are also locally significant. For additional procedures and criteria requirements to identify Locally Significant Wetlands, refer to the OAR 141-086-0350.

4.0 RESULTS

4.1 Wetlands

A total of 22 wetlands (uniquely numbered polygons) were observed and recorded within the study area (Table 1). These wetlands are depicted on the Lowell Local Wetland Inventory Map (Appendix F). Summary sheets describing wetland characteristics are provided in Appendix G. A glossary of Cowardin classes, water regimes, and special modifies depicted on the inventory maps is provided in Appendix H. Seventeen probable wetlands (PW) and two artificial wetlands (fire ponds) were identified in the study area.

Table 1. Summary of Wetlands in Lowell Study Area

Wetland Code	Size (acres)
1	2.42
2a-d	10.81
3	0.25
4	0.42
5	0.42
6	0.34
7	9.14
8	0.31
WD1993-0106-1	0.20
WD1993-0106-2	0.85
WD1994-0067*	0.34
WD1996-0016-1	0.02

Wetland Code	Size (acres)
WD1996-0016-2	0.16
WD1997-0473-1	0.12
WD1997-0473-2	0.23
WD1999-0201*	1.62
WD2008-0030	0.51
WD2008-0618-1	0.22
WD2008-0618-2	0.10
WD2008-0618-3	0.02
WD2008-0618-4	0.002
WD2009-0442*	6.87
Total	35.38

*Wetlands that changed in size or configuration based on the existing DSL wetland boundaries.

4.2 Deepwater Habitat

Only one deepwater habitat was identified in the Lowell study area; this is Dexter Lake. Dexter Lake covers approximately 173 acres.

4.3 Other Waters

Two man-made fire ponds were mapped in the northern portion of the Lowell study area based on landowner input at the April 2011 public meeting. Wastewater treatment ponds at the southern end of the study area cover less than 0.5 acre, are mapped in upland soils, and therefore were not included in the inventory. Other waters may or may not be state or federally jurisdictional.

4.4 Streams

Twelve previously unrecorded streams were added to the rivers and streams GIS layer for the study area. Three existing streams exhibited deviations from the original rivers and streams GIS layer. None of the streams in the study area is named.

4.5 Wetlands of Special Interest for Protection

Three wetlands in Lowell qualify for consideration as Wetlands of Special Interest for Protection. Federally listed fish species (Chinook salmon, Oregon chub, and bull trout)

are documented as occurring in Dexter Reservoir (DSL, 2010) and Wetlands 7, 8, and WD 2009-0442 were determined to provide habitat for these fish species for at least a portion of a typical year. Three wetlands (Wetlands 6, WD 2008-0618-1, and WD 2008-0618-2) occur on public and/or federal lands, but whether protective management plans exist for these areas is unknown, therefore these wetlands do not meet the criteria for consideration as Wetlands of Special Interest. Refer to Appendix D for Wetlands of Special Interest answers.

4.6 OFWAM Results

The 17 wetland assessment units within the study area had variable habitat and hydrologic function ratings (Table 2). Three of the assessment units were rated as providing diverse wildlife habitat. Of the 12 assessment units evaluated for fish habitat, only one rated as intact (Wetland 8). None of the assessment units were judged to have intact water quality and two wetlands were rated as having intact hydrologic control. OFWAM wetland characterization results; function and condition assessment scores (wildlife habitat, fish habitat, water quality, and hydrologic function); and function and condition summary sheets are presented in Appendix D.

Table 2. OFWAM Results for Wetlands in the Lowell Study Area

Wetland Assessment Unit / Wetland Code	Wildlife Habitat	Fish Habitat Streams	Fish Habitat Ponds	Water Quality	Hydrologic Control	LSW ?
1	Limited	Impacted	N/A	Impacted	Impacted	No
2a-d	Limited	Impacted	N/A	Impacted	**Intact**	**Yes**
3	Limited	N/A	N/A	Impacted	Not Present	No
4	Limited	Impacted	N/A	Impacted	Impacted	No
5	Limited	Impacted	N/A	Impacted	Impacted	No
6	Limited	N/A	N/A	Impacted	Impacted	No
7	**Diverse**	N/A	Impacted	Impacted	**Intact**	**Yes**
8	**Diverse**	N/A	**Intact**	Impacted	Not Present	**Yes**
WD1993-0106-1 & 2	Limited	Impacted	N/A	Impacted	Impacted	No
WD1994-0067	Limited	N/A	N/A	Impacted	Not Present	No
WD1996-0016-1 & 2; WD2008-0030	Limited	Impacted	N/A	Impacted	Impacted	No
WD1997-0473-1	Limited	N/A	N/A	Impacted	Impacted	No
WD1997-0473-2	Limited	N/A	N/A	Impacted	Impacted	No
WD1999-0201	Limited	Impacted	N/A	Impacted	Not Present	No
WD2008-0618-1	Limited	Impacted	N/A	Impacted	Impacted	No
WD2008-0618-2 to 4	Limited	N/A	N/A	Impacted	Impacted	No
WD2009-0442	**Diverse**	N/A	Impacted	Impacted	Impacted	**Yes**

***** Note: Responses in **bold** qualify the resource for designation as locally significant.

4.7 Locally Significant Wetlands (LSWs)

Twenty-four percent or 4 of the 17 wetland assessment units in the study area meet the criteria for designation as locally significant. Refer to Table 2 in Section 4.6 above for the OFWAM results and the qualifying function(s) provided by each wetland. Thirteen wetland assessment units (Wetlands 1, 3, 4, 5, 6, WD1993-0106-1&2, WD1994-0067, WD1996-0016-1&2; WD2008-0030, WD1997-0473-1, WD 1997-0473-2, WD1999-0201, WD2008-0618-1, and WD2008-0618-2 to 4) did not qualify as designation for locally significant status in part because they tended to be smaller, dominated by emergent vegetation only, lacked evidence of ponding and/or waterflow out of the wetland was unrestricted, and the dominant land use in the watershed upstream from the assessment area was forested or natural area.

5.0 DISCLAIMER

This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge and based upon conditions observed during field work conducted in the spring 2010. Mapping provided should be considered a preliminary inventory map of wetlands and other waters and used for planning purposes only. This study does not represent formal wetland delineation on specific properties. A formal wetland delineation reviewed and approved by DSL is required for state removal-fill permits as required for development on specific properties. Contact the DSL or Corps with any regulatory questions.

6.0 LITERATURE CITATIONS

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APPENDIX A: RIPARIAN INVENTORY AND ASSESSMENT REPORT

LOWELL RIPARIAN INVENTORY AND ASSESSMENT REPORT

Prepared for

Lane Council of Governments and
City of Lowell

October 2011

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1.0 INTRODUCTION

The Lane Council of Governments (LCOG) is undertaking eight separate Local Wetland Inventories and riparian inventories in the southern Willamette Valley in accordance with statewide planning goals. Statewide Goal 5 (Natural Resources) requires local governments to inventory wetlands and riparian areas in order to protect locally significant resources while balancing the needs of growth and development. A local wetland inventory (LWI) is a planning and regulatory tool used by local governments and landowners. Riparian inventories are also being completed as part of the LWI effort. A riparian inventory is a planning tool that assesses the land immediately adjacent to water resources such as lakes, rivers, and streams.

Environmental Science Associates (ESA) prepared three of the eight LWIs and riparian inventories for the following local governments: Cities of Lowell, Creswell, and Cottage Grove. Each LWI is described in separate reports and the riparian inventories are presented in the appendices. This report describes the results for the Lowell riparian inventory.

An Urban Riparian Inventory and Assessment is a rapid assessment tool used to gain a better understanding of the riparian resources within a particular urban area of interest; allowing for improved management and restoration of these riparian corridors. Four riparian functions are assessed for each riparian reach: 1) water quality, 2) flood management, 3) thermal regulation and 4) wildlife habitat.

2.0 METHODS

Riparian reaches were inventoried and assessed according to the Urban Riparian Inventory and Assessment Guide (Division of State Lands (as cited), 1998). Riparian reaches were initially mapped using aerial imagery and were delineated based on the dominant land use along each qualifying water resource. The reach delineations were field verified and assessed for hydrologic and habitat functions. A qualifying water resource must be perennial and fish bearing. A fish bearing stream is defined as one that provides habitat for either resident or anadromous fish such as salmon and steelhead. Sources used to determine whether streams were perennial and fish-bearing include the following: 1) Lowell Quadrangle, 7.5 minute series, topographic (USGS, 1986); 2) essential salmon habitat (ESH) mapping (DSL, 2010), 3) field observations, and 4) discussions with landowners.

Other information sources used include:

a) Oregon Department of Forestry stream classification maps;
b) National Wetlands Inventory Maps;
c) Oregon Department of Fish and Wildlife maps including fish habitat; and
d) Federal Emergency Management Agency flood maps.

Reaches on each side of a stream (defined as the left side and right side when facing downstream) were assigned a unique code. The start and end points of the riparian reaches illustrate the beginning and/or ending of dominant land use changes. The width of the riparian

corridor was determined by the potential tree height (PTH) of the dominant tree species growing in the reach.

3.0 RIPARIAN CHARACTERIZATION AND RESULTS

A summary of the Riparian Inventory and Assessment results are shown in Table 1. Riparian Function Assessment data sheets for the water resource reaches are attached.

Lowell has one qualifying water resource, Dexter Lake reservoir located on the Middle Fork Willamette River. The Middle Fork Willamette River reach that includes Dexter Lake is reported on DEQ's 303(d) list of water quality limited streams (DEQ, 2004/2006), and is mapped as ESH (DSL, 2010). The riparian area of Dexter Lake in the study area consisted of three reaches (DL-1R, DL-2R and DL-3R), all on the north or "right" side of the lake. All riparian reaches were dominated by black cottonwood trees with a PTH of 120 feet.

Overall, the riparian reaches of Lowell are in relatively good condition with medium and high hydrologic and habitat ratings. The three reaches are rated high for water quality and wildlife habitat due to adequate shading from woody vegetation and the presence of large woody debris. All of the reaches were rated medium for flood management because of dominant woody vegetation at the top of bank which slows the velocity of water within the flood prone areas. This area is also constricted by the dams, slowing water flow in the study area but potentially increasing flooding downstream. All reaches rated medium for thermal regulation because of the presence of some overhanging woody vegetation.

Dominant land use does not appear to affect the ratings of the riparian functions. Most of the residential areas have relatively extensive woody and herbaceous vegetation cover which increases the functions of the riparian corridor.

Table 1. Urban Riparian Inventory and Assessment Summary

Water Resource	Reach Code*	Land Use	Length (feet)	Salmon or steelhead?	303(d)-listed? Temp	Water Quality	Flood Management	Thermal Regulation	Wildlife Habitat
Dexter Lake	DL-1R	Open Space / Natural	3,954	Yes	Yes	High	Medium	High	High
	DL-2R	Resi-dential	2,709	Yes	Yes	High	Medium	Medium	High
	DL-3R	Open Space / Natural	2,442	Yes	Yes	High	Medium	Medium	High

*Riparian reaches are coded for the water resource and side of stream (looking downstream; right side [R] and left side [L]). .

4.0 DISCLAIMER

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of our knowledge

5.0 LITERATURE CITATIONS

Oregon Department of Environmental Quality (DEQ). 2004/2006. *2004/2006 Section 303(d) List, Integrated Report*. Portland, Oregon. Available at: http://www.deq.state.or.us/wq/assessment/rpt0406/search.asp

Oregon Department of State Lands (DSL). 2010. *Essential Salmonid Mapping, Lane County*. State of Oregon. Available at: http://www.oregonstatelands.us/DSL/PERMITS/docs/maps/lane.pdf.

Oregon Division of State Lands (DSL). 1998. *Urban Riparian Inventory & Assessment Guide*. March. Prepared by Pacific Habitat Services, Inc.

U.S. Geological Survey (USGS). 1986. *Lowell Quadrangle*, 7.5 minute series, topographic. Lane County, Oregon.

ATTACHMENTS: RIPARIAN FUNCTION ASSESSMENT REFERENCE QUESTIONS AND DATA SHEETS

Riparian Function Assessment Answer Sheet

Water Quality

Riparian Code

Score

1. **What is the average slope in the riparian area?**
   a. Less than 10:1(10%) ..... 3 pts
   b. Between 10:1 (10%) and 5:1(20%) ..... 2 pts
   c. Greater than 5:1 (20%)..... 1 pt

2. **What is the dominant vegetation cover in the riparian area?**
   a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high..... 3 pts
   b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high..... 2 pts
   c. Bare ground..... 1 pt

3. **What is the dominant vegetation at the top of bank (if defined) or edge of water resource?**
   a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high..... 3 pts
   b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high..... 2 pts
   c. Bare ground..... 1 pt

4. **What is the extent of impervious surfaces within the riparian area?**
   a. Less than 10%..... 3 pts
   b. Between 10% and 25% ..... 2 pts
   c. Greater than 25%..... 1 pt

5. **How does the Natural Resources Conservation Service (formerly Soil Conservation Service) soil survey rank the water erosion hazard of the dominant mapped unit in the riparian area? Select the highest water erosion hazard description if more than one is listed.**
   a. Low, slight, moderate..... 2 pts
   b. High, severe, very high ..... 1 pt

Total Points: _____

Function: High (12-14 pts) Medium (8-11 pts) Low (5-7 pts)

FUNCTION

High	☐
Medium	☐
Low	☐

Riparian Function Assessment Answer Sheet

Flood Management

Riparian Code

Score

6. Are there flood prone areas (adjacent flat areas, depressions, swales, FEMA mapped 100-year floodplain, etc.) beyond the top of bank or edge of the water resource?
   a. Yes ..... 3 pts
   b. No ..... 1 pt _____

7. Is woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high dominant in the flood prone riparian area?
   a. Yes ..... 3 pts
   b. No or no flood prone area present ..... 1 pt _____

8. Is the stream or water resource constricted by man-made features (e.g. channelization, riprap, concrete wall)?
   a. No ..... 3 pts
   b. Yes ..... 1 pt _____

Total Points: _____

Function: High (8-9 pts) Medium (5-7 pts) Low (3-4 pts)

FUNCTION

High ☐
Medium ☐
Low ☐

Riparian Function Assessment Answer Sheet

Thermal Regulation

Riparian Code

Score

9. **Does the aspect or orientation of the riparian area allow for shading of water at mid-day in the summer?**
   a. Yes . . . . . 3 pts
   b. No . . . . . 1 pt

10. **What is the dominant vegetation layer in the riparian area?**
   a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high . . . . . 3 pts
   b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high. . . . . 2 pts
   c. Bare ground . . . . . 1 pt

11. **Does woody vegetation hang over the edge of the water?**
   a. Yes . . . . . 2 pts
   b. No . . . . . 1 pt

Total Points: _____

Function: High (7-8 pts) Medium (5-6 pts) Low (3-4 pts)

FUNCTION
High ☐
Medium ☐
Low ☐

Riparian Function Assessment Answer Sheet

Wildlife Habitat

Riparian Code

Score

12. **How many vegetation layers (i.e. canopy, mid-story, groundcover) are present?**
    a. More than 2 layers ..... 3 pts
    b. 2 layers ..... 2 pts
    c. 1 layer, or unvegetated ..... 1 pt

13. **What is the dominant vegetation layer in the riparian area?**
    a. Woody vegetation (trees, shrubs, vines) greater than 1 meter (3.2 feet) high ..... 3 pts
    b. Herbaceous vegetation or woody vegetation less than 1 meter (3.2 feet) high ..... 2 pts
    c. Bare ground ..... 1 pt

14. **Does woody vegetation hang over the edge of the water?**
    a. Yes ..... 2 pts
    b. No ..... 1 pt

15. **Is large woody debris present within the riparian area?**
    a. Yes ..... 3 pts
    b. No ..... 1 pt

16. **What percent of the water resource edge is bordered by a vegetated riparian area at least 30 feet wide?**
    a. Greater than 40% ..... 3 pts
    b. Between 10% and 40% ..... 2 pts
    c. Less than 10% ..... 1 pt

Questions continued on next page.

Wildlife Habitat (continued)

Riparian Code

Score

17. **Is surface water present throughout the year?**
    a. Yes ..... 3 pts
    b. No ..... 1 pt _____

18. **Is there more than one type of water resource (e.g. stream, wetland, lake/pond) within or immediately adjacent to the riparian reach?**
    a. Yes ..... 3 pts
    b. No ..... 1 pt _____

19. **What is the degree of development or human-caused disturbance (e.g. buildings, impervious surfaces, lawns, agriculture, trash) in the riparian area?**
    a. Less than 25% ..... 3 pts
    b. Between 25% and 75% ..... 2 pts
    c. Greater than 75% ..... 1 pt _____

Total Points: _____

Function: High (19-23 pts) Medium (13-18 pts) Low (8-12 pts)

FUNCTION

High	☐
Medium	☐
Low	☐

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-1R

Riparian Width Determination

Date: 4/20/2010 Investigators: Alison Sigler, Nancy Holzhauser

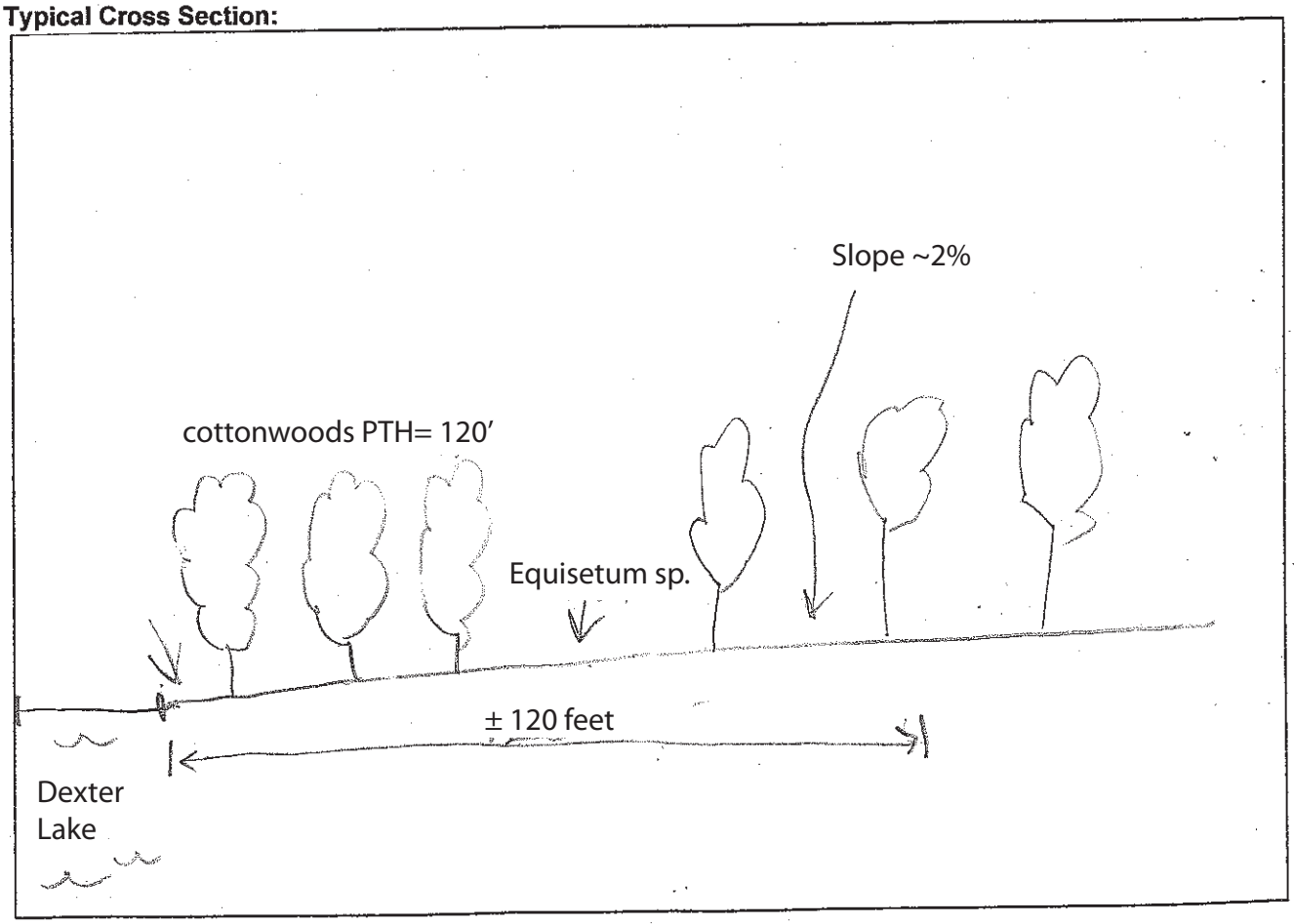
Dominant tree species: Populus balsamifera

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: Flat

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-1R

Riparian Characterization Form — Part 1

General Information

Date: 4/20/2010

On-site ☑ Office ☐ Reach Length: 3,954

Investigators: Alison Sigler, Nancy Holzhauser Hydrologic Basin: Willamette

Water Resource Information

Water Resource:			
	Stream/River ☐	Width:	0
	Lake/Pond ☑	Width:	2767
	Wetland ☑	Width:	608

LWI Wetland Code:

Water present year-round: Yes

Are salmonids present in the adjacent water resource Yes

Is the water resource listed for temperature on DEQ's 303(d) list Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 52B, 100, 121C

Adjacent Land Uses?

Agriculture ☐ Residential ☐ Undeveloped ☑
Commercial ☐ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Populus balsamifera	Deschampsia cespitosa
Fraxinus latifolia	Phalaris arundinacea
	Equisetum sp.
	Carex obnupta
	Alopecurus pratensis
	Juncus patens
	Iris pseudacorus
	Lotus corniculatus

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-1R

Riparian Characterization Form

Part 2

Average slope in the riparian area: (Question 1)

☑ <10:1 (10%) ☐ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-1R

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	3
Question 2:	3
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	14

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	3
Question 8:	1
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	1
Question 10:	3
Question 11:	3
Total Points:	7

Function:
- [x] High
- [ ] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	3
Question 19:	3
Total Points:	23

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-2R

Riparian Width Determination

Date: 4/20/2010 Investigators: Alison Sigler, Nancy Holzhauser

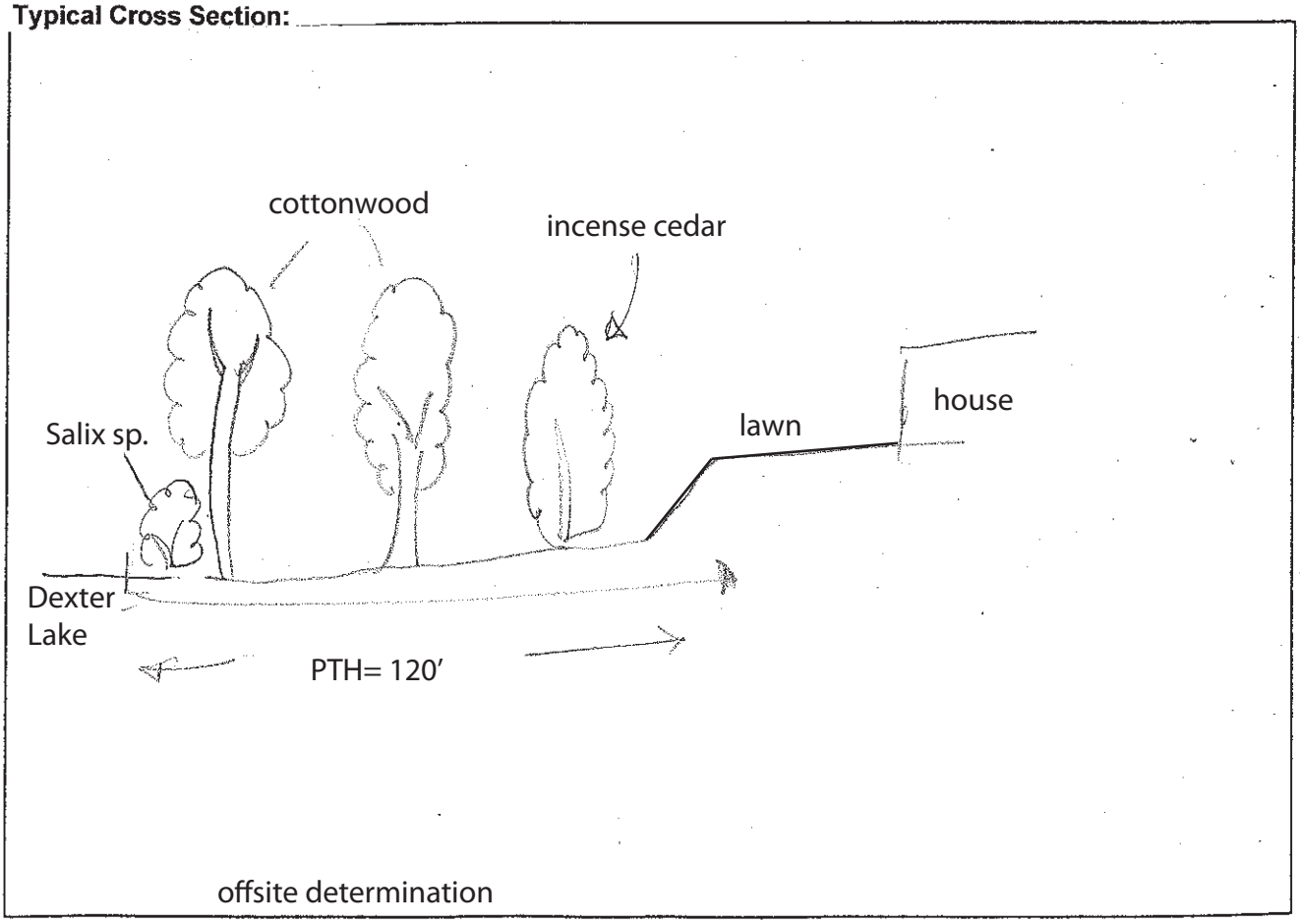
Dominant tree species: Populus balsamifera

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: Entire reach has residential development and ducks, includes wastewater treatment plant.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-2R

Riparian Characterization Form — Part 1

General Information

Date: 4/20/2010

On-site ☑ Office ☐ Reach Length: 2,709

Investigators: Alison Sigler, Nancy Holzhauser Hydrologic Basin: Willamette

Water Resource Information

Water Resource:			
	Stream/River ☐	Width:	0
	Lake/Pond ☑	Width:	2837
	Wetland ☑	Width:	31

LWI Wetland Code:

Water present year-round: Yes

Are salmonids present in the adjacent water resource Yes

Is the water resource listed for temperature on DEQ's 303(d) list Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 105A, 121B, 121C

Adjacent Land Uses?

Agriculture ☐	Residential ☑	Undeveloped ☐
Commercial ☑	Roads ☐	Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Populus balsamifera	Galium aparine
Salix sp.	Deschampsia cespitosa
Rubus discolor	Dipsacus sylvestris
Prunus sp.	Carex obnupta
Calocedrus decurrens	

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-2R

Riparian Characterization Form

Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☐ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☐ 25% to 75% ☑ >75%

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-2R

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	2
Question 4:	3
Question 5:	2
Total Points:	12

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	3
Question 8:	1
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	1
Question 10:	3
Question 11:	2
Total Points:	6

Function:
- [ ] High
- [x] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	1
Question 19:	1
Total Points:	19

Function:
- [x] High
- [ ] Medium
- [ ] Low

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-3R

Riparian Width Determination

Date: 4/20/2010 Investigators: Alison Sigler, Nancy Holzhauser

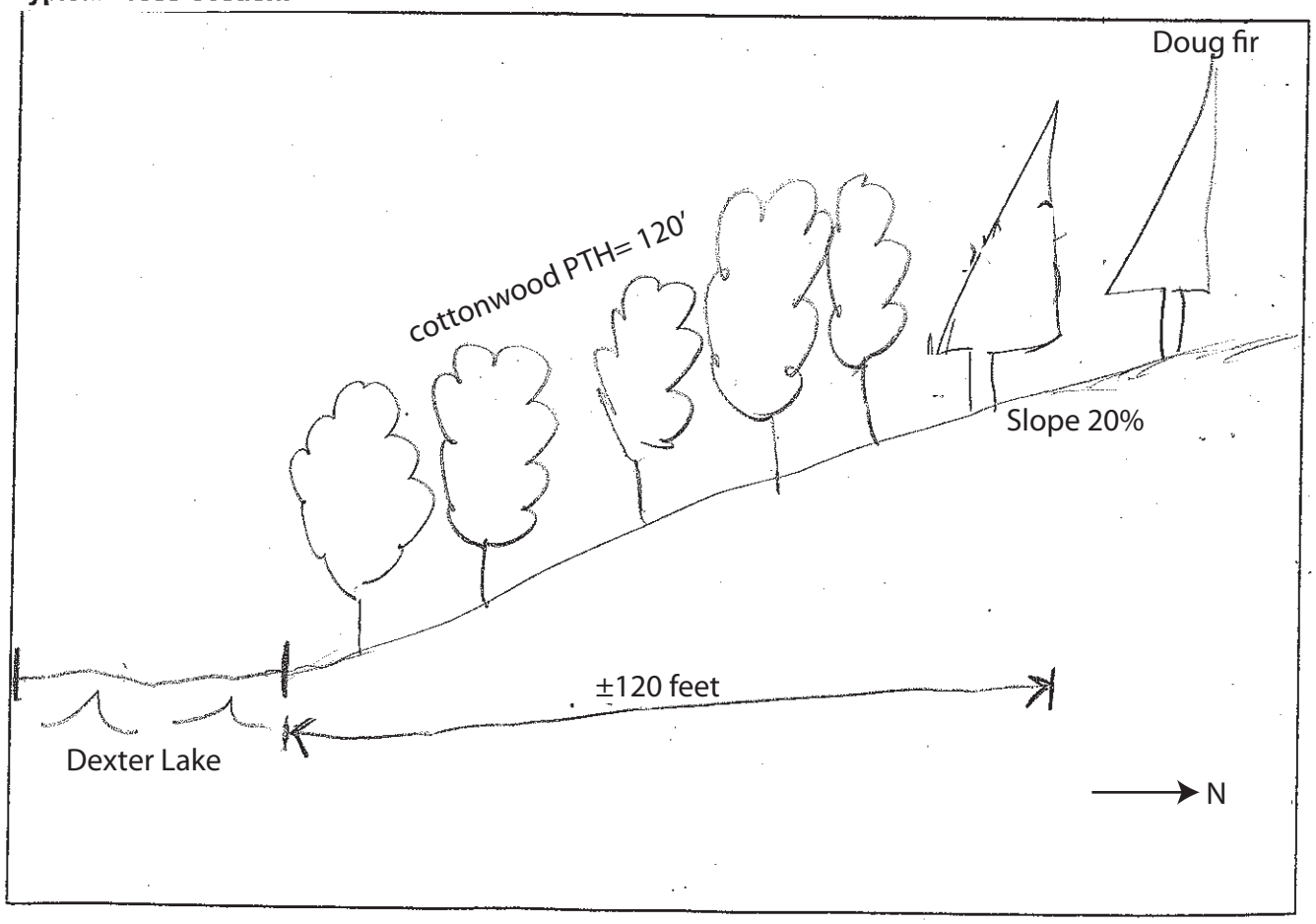
Dominant tree species: Populus balsamifera

Potential tree height (PTH)/Width of Riparian Area: 120/120
(Width measured horizontally from edge of water resource)

PTH determined by: ☑ On-site vegetation ☐ Reference site Code:

Comments: Park is included in the reach and is the only section with a concrete retaining wall.

Typical Cross Section:



Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-3R

Riparian Characterization Form — Part 1

General Information

Date: 4/20/2010

On-site ☑ Office ☐ Reach Length: 2,442

Investigators: Alison Sigler, Nancy Holzhauser Hydrologic Basin: Willamette

Water Resource Information

Water Resource: Stream/River ☐ Width: 0
Lake/Pond ☑ Width: 4300
Wetland ☐ Width: 0

LWI Wetland Code:

Water present year-round: Yes

Are salmonids present in the adjacent water resource Yes

Is the water resource listed for temperature on DEQ's 303(d) list Yes

Within FEMA-mapped 100-year floodplain: Yes

Mapped soil series: 52B, 89D, 105A

Adjacent Land Uses?

Agriculture ☐ Residential ☐ Undeveloped ☑
Commercial ☐ Roads ☐ Forestry ☐

Woody Vegetation	Herbaceous Vegetation
Populus balsamifera	Poa annua
Oemleria cerasiformis	Carex obnupta
Rhamnus purshiana	Deschampsia cespitosa
Salix hookeriana	Plantago lanceolata
Pseudotsuga menziesii	Lolium sp.
Crataegus douglasii	Rubus discolor
Calocedrus decurrens	Comandra umbellata
	Bellis perennis

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-3R

Riparian Characterization Form

Part 2

Average slope in the riparian area: (Question 1)

☐ <10:1 (10%) ☑ Between 10:1 (10%) and 5:1 (20%) ☐ >5:1 (20%)

Extent of impervious surface within the riparian area: (Question 4)

☑ <10% ☐ 10% to 25% ☐ >25%

☐ **The reach is constricted by man-made features.**

☑ **The orientation allows for shading of the water resource at midday in summer.**

Dominant vegetation layer within the riparian area:

☑ Woody vegetation ☐ Herbaceous vegetation ☐ Bare ground

☑ **Woody vegetation hangs over the edge of the water.**

☑ **Large woody debris in riparian area.**

Percent of water resource bordered by vegetated riparian area at least 30 feet wide:

☑ >40% ☐ 10% to 40% ☐ <10%

Degree of development or human cause disturbance:

☐ <25% ☑ 25% to 75% ☐ >75%

Urban Riparian Inventory and Assessment

Project Number: 209503.1
Project Name: Lowell LWI
Riparian Code: DL-3R

Riparian Function Assessment Answer Sheet

Water Quality

Question 1:	2
Question 2:	3
Question 3:	3
Question 4:	3
Question 5:	2
Total Points:	13

Function:
- [x] High
- [ ] Medium
- [ ] Low

Flood Management

Question 6:	3
Question 7:	3
Question 8:	1
Total Points:	7

Function:
- [ ] High
- [x] Medium
- [ ] Low

Thermal Regulation

Question 9:	1
Question 10:	3
Question 11:	2
Total Points:	6

Function:
- [ ] High
- [x] Medium
- [ ] Low

Wildlife Habitat

Question 12:	3
Question 13:	3
Question 14:	2
Question 15:	3
Question 16:	3
Question 17:	3
Question 18:	3
Question 19:	3
Total Points:	23

Function:
- [x] High
- [ ] Medium
- [ ] Low

APPENDIX B: STAFF QUALIFICATIONS

Local Wetland Inventory Staff Roles and Qualifications

Staff	Company	Project Role
Teresa Vanderburg	ESA	Co-Project Manager, 10-2010 to Present
John Gordon	ESA	Project Manager, 2-2010 to 10-2010
Sarah Hartung	ESA	Co-Project Manager, 10-2010 to Present
Alison Sigler	ESA	Project Scientist, GIS
Mike Leech	ESA	Senior GIS Analyst
Paul Adamus, PhD	Adamus Resource Assessment, Inc.	Wetland Assessment Lead
Nancy Holzhauser	Environmental Solutions, LLC	Local Project Scientist
M. Loverna Wilson	Loverna Wilson, Environmental Consultant	Local Project Scientist

Project staff résumés describing their qualifications follow this sheet in the order listed above.

TERESA H. VANDERBURG

Practice Lead, Biological Resources

Teresa has 20 years of experience in natural resource management and scientific analyses. She is the Practice Lead for the Biological Resources Group. Teresa is an experienced project manager and has managed environmental permits and mitigation planning for several large-scale public infrastructure projects, including the Seattle Public Utilities Tolt Water Supply Pipeline No. 2 in King County, and the North Fork Clover Creek Regional Detention Pond in Pierce County, Washington. She has reviewed and/or performed hundreds of wetland assessments, delineations, and wetland mitigation projects. Teresa's expertise also includes shoreline master program (SMP) updates for eight cities and two counties in western Washington. She has also developed critical area ordinances using "best available science" for Tukwila, Kent, Burien, Kenmore, Gig Harbor, Sumner and Tacoma. Teresa also serves as an expert witness in hearings, trials and other legal proceedings. She participated in a Local Government Wetland Advisory Team assisting Washington State Department of Ecology in development of management regulations for wetlands statewide. She also serves as a senior advisor to the University of Washington Wetlands Management Certificate program.

Education

M.S., Environmental Science, Washington State University

B.S., Biology, Eastern Kentucky University

20 Years of Experience

Registrations/Certifications

Jurisdictional Delineation of Wetlands in the Pacific Northwest, National Wetlands Science Training Cooperative (1990)

Certified Wetland Biologist, Pierce County (current)

Society of Wetland Scientists, Professional Wetland Scientist (PWS)

Professional Affiliations

Society of Wetland Scientists

Ecological Society of America

Senior Advisor for the UW Wetland Management Certificate Program

Relevant Experience

Peer Review CAO Wetlands Update, Island County, WA. ***Scientific Peer Reviewer.*** Teresa provided independent scientific peer review for the proposed Island County wetland rating system and land use regulations prepared by Paul Adamus of Oregon State University. Teresa reviewed the assessment methods, the best available science document, and the proposed regulations and provided comments as a member of the science panel. Island County conducted a local wetland inventory and developed a unique wetland rating and protection strategy based upon the relative quality of wetlands identified specifically on Camano and Whidbey Islands in North Puget Sound.

City of Auburn Wetland and Stream Inventory, WA. ***Project Manager.*** Teresa conducted an inventory of stream and wetland resources on approximately 14,550 acres within the City limits of Auburn, Washington. The 2002 inventory updated information from an earlier wetland inventory conducted in 1990 and 1991. Work included comprehensive field reconnaissance work, wetland descriptions, stream classifications, GIS maps and associated metadata and a summary technical report. Historical permit information from approximately 90 historical permit files was incorporated into the GIS metadata and maps to allow the City to track past permit activities by parcel.

Clark County SMP Update, WA. ***Scientific Lead.*** Clark County and six cities therein are working together to update their SMPs. Clark County shorelines include significant waterbodies such as the Columbia River, Lewis River, Vancouver Lake and Washougal River. Teresa is the lead on the shoreline inventory and analysis report which was completed in Draft form for Ecology

Relevant Experience (Continued)

review in June 2010. Teresa has coordinated with the Technical Advisory Committee and Shoreline Stakeholder Advisory Committee on technical issues regarding shoreline jurisdiction, GIS analysis, scientific data and creation of the map folio. Three draft inventory reports were prepared and reviewed by stakeholders in the spring. Teresa has also supervised completion of the Draft Restoration Plan during this same time frame and coordinated completion of a summary table for development of the preliminary shoreline environment designations for the County.

City of Tacoma SMP Update - Critical Areas Preservation Ordinance (CAPO), WA. ***Scientific Lead.*** The shorelines of the City of Tacoma include Commencement Bay, marine areas along Hood Canal, the Puyallup River, Hylebos Creek, and Wapato Lake. As the scientific lead, Teresa has assisted City staff in the review of the City's recently adopted CAPO and the requirements under the new shoreline guidelines for protection of marine critical areas within the shoreline. The City of Tacoma has been challenged before the Growth Management Hearings Board (GMHB) related to the adequacy of the City's protection of its designated critical marine fish and wildlife habitats. Further, Ecology requires a comprehensive update of the SMP to address critical areas within the shoreline jurisdiction. Teresa provided senior review of the Draft Shoreline Inventory and Characterization Report prepared for the City, and prepared a "gap analysis" of issues related to critical areas protection in the City's shoreline environment. Teresa also prepared a "best available science" review of critical marine fish and wildlife habitats found within the City and summarized protection measures necessary to sustain these species and habitats. Teresa met with technical and citizens advisory groups related to the CAPO updates and shoreline inventory. Teresa presented scientific information to the Tacoma Planning Commission and to City Council, resulting in successful adoption of the ordinance and successful resolution of the GMHB challenge.

City of Federal Way SMP Update, WA. ***Project Manager.*** Teresa is assisting the City of Federal Way with an update to its SMP. Federal Way shorelines include the marine shoreline of Puget Sound and portions of seven freshwater lakes. Teresa has managed the completion of the Shoreline Inventory and Characterization Report, including its on-time delivery to the Washington State Department of Ecology. She also worked with planners and the City to develop preliminary environment designations and goals, policies and shoreline regulations. Public involvement included preparation of a Public Participation Plan, attendance at an Open House, presentation to the Planning Commission, and participation in five meetings with the Citizens Advisory Committee. Teresa supported city staff through the adoption process for the Draft SMP; the program was adopted by resolution in June 2007. Teresa is currently assisting the City with response to Ecology comments on the Draft SMP and formal approval of the program at the state level.

JOHN GORDON

Biological Resources Program Manager

John is a wetland biologist with over 12 years of experience. He has provided a full spectrum of wetland consulting services in Oregon, Washington, Idaho, Montana, Nevada and Utah. He is a project manager on multidisciplinary projects with wetland, Endangered Species Act and National Historic Preservation Act components. He has extensive experience working with clients in both the public and private sectors, and with natural resource agency scientists.

Education

B.S., Biology, Portland State University

Selected Training

U.S. Army Corps of Engineers Wetland Delineation Training, 1996.

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region, 2007.

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, 2008.

Oregon Rapid Wetland Assessment Protocol, 2009.

Oregon Streamflow Duration Assessment Methodology, 2009.

Certified consultant for ODOT Biological Assessment Deliverables, 2007.

Certified ODOT CS3 Consultant, 2005.

Affiliations

Member, Society of Wetland Scientists.

Over 12 Years of Experience

Selected Relevant Experience

City of Klamath Falls Local Wetland Inventory and Riparian Assessment, Klamath Falls, Oregon. ***Project Manager.*** John was the project manager for the City of Klamath Falls Local Wetland Inventory (LWI) and Riparian Assessment. This is the largest LWI in the state, including parts of more than 60 Sections in the study area of over 23,000 acres. John met with City officials and staff from Oregon Department of State Lands (DSL), and made presentations at public meetings. He analyzed aerial photographs and other resources as required in Oregon Administrative Rules to prepare preliminary wetland field maps. John planned and scheduled work, supervised wetland staff in the field to collect accurate inventory data, and participated in all aspects of the inventory. Wetlands were assessed with OFWAM. Riparian areas were assessed with the Urban Riparian Inventory and Assessment Guide. He supervised staff in the office to analyze field data and produce LWI maps and reports, and provided QA/QC review. This LWI was approved and adopted by the City and DSL. It has been incorporated into Oregon's statewide wetland inventory.

City of Gresham Local Wetland Inventory, Gresham, Oregon. ***Project Manager.*** John was the project manager for the City of Gresham LWI, with a study area of about 15,000 acres. John met with City officials and DSL staff, and made presentations at public meetings. He analyzed resources specified in LWI rules to locate possible wetlands. He analyzed wetlands using the U.S. Army Corps of Engineers 1987 Wetland Delineation Manual to determine their wetland status. He supervised a staff of wetland scientists and cartographers on the project. John and his team evaluated the wetlands with the Oregon Freshwater Wetland Assessment Methodology (OFWAM) to make Locally Significant Wetland determinations, and prepared reports and maps to meet LWI standards. Both the City of Gresham and DSL approved and adopted this inventory.

Oregon Rapid Wetland Assessment Protocol (ORWAP). John was contracted by DSL to conduct preliminary testing of ORWAP on representative wetlands. John served on the DSL Technical Advisory Committee for the development of ORWAP. He received project-

specific training from Dr. Paul Adamus, author of ORWAP, prior to conducting the work.

City of Beaverton Local Wetland Inventory, Washington County, Oregon;
City of Vernonia Local Wetland Inventory, Columbia County, Oregon;
City of Clatskanie Local Wetland Inventory, Columbia County, Oregon;
City of Woodburn Local Wetland Inventory, Marion County, Oregon;
City of Silverton Local Wetland Inventory, Marion County, Oregon;
City of Oregon City Local Wetland Inventory, Clackamas County, Oregon. ***Wetland Scientist.*** On each of these LWIs, John used resources specified in LWI protocols to locate possible wetlands for preparation of preliminary wetland maps. He mapped wetlands and evaluated them with OFWAM to determine if they met standards for Locally Significant Wetlands. He used the Urban Riparian Inventory and Assessment Guide to assess riparian areas on the Vernonia, Clatskanie, Silverton and Oregon City projects. He prepared reports and worked with cartographers to prepare maps to meet LWI requirements. These inventories were approved by the respective cities and DSL.

Great Basin National Park Wetland and Riparian Inventory, Great Basin NP, Nevada. ***Wetland Scientist.*** John mapped over 200 wetland and riparian sites on a 77,000-acre study area for this joint project between the U.S. Fish and Wildlife Service National Wetlands Inventory (NWI) and the National Park Service. He produced a report for the National Park Service Water Resources Division, and the NWI.

Zion National Park Wetland and Riparian Inventory, Zion NP, Utah. ***Project Manager.*** John mapped and classified wetlands and riparian vegetation along 20 miles of the Virgin River in southwest Utah. He interpreted aerial photographs, USGS topographic maps, National Wetlands Inventory data and GPS equipment to identify and locate wetlands. He classified wetlands according to the Cowardin classification system.

Duck Valley Reservation Wetland Inventory, Duck Valley Reservation, Idaho and Nevada. ***Wetland Scientist.*** John worked with a team of wetland scientists and tribal members to inventory approximately 10,000 acres of wetlands on 45,000 acres of the Shoshone – Paiute Duck Valley Reservation. He interpreted aerial photographs, soil survey maps, and topographic maps to determine the probable location of wetlands. He traversed the area to document wetland characteristics. This work was conducted to facilitate a Reservation wetland management plan.

SARAH C. HARTUNG

Wetlands and Wildlife Scientist

Sarah is a wetlands and wildlife scientist with eleven years of consulting experience in Oregon and Washington. Her experience includes wetland determinations and delineations, botanical surveys, species-specific surveys, and joint wetland permit applications. Sarah has delineated hundreds of wetlands and has prepared delineation reports for several large-scale transportation projects in the Pacific Northwest. She brings a proven record of obtaining wetland permits from the Department of State Lands and the U.S. Army Corps of Engineers in a timely manner. Sarah also has extensive experience preparing wetland mitigation and habitat restoration plans.

Education

M.S., Avian Ecology, University of Illinois, Champaign-Urbana

B.A., Biology, Hamline University, St. Paul, Minnesota

Selected Training

Oregon Rapid Wetland Assessment Protocol (ORWAP)

Oregon Streamflow Duration Assessment Method (OSDAM)

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Valleys, Mountains and Coast Range

ODOT Certification for Preparing Biological Assessments

Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region

Advanced Soils Training

Affiliations

Member and Wetland Professional in Training, Society of Wetland Scientists

11 Years of Experience

Relevant Experience

Lane County Sign Replacement Project. Lane County, Oregon. ***Project Manager and Wetland Scientist.*** Sarah served as project manager and field scientist for this large-scale transportation sign upgrade project. ODOT proposed to replace 500 road signs along 30 miles of I-5 in Lane County to meet current FHWA readability standards. Sarah and another ESA Adolfson wetland scientist determined the presence of wetlands within 25 feet of proposed sign locations and identified 200 potential wetlands. She delineated wetlands at 10 sign locations and completed the joint permit application (JPA) for approval from the U.S. Army Corps of Engineers (Corps). Sarah facilitated timely review of the JPA and assisted project engineers with construction specifications for avoiding wetland impacts.

ODOT – I-5 Bridges Vertical Improvements, Lane, Linn, and Marion Counties, Oregon. ***Project Manager and Field Lead.*** Sarah served as project manager and field crew leader for wetland scoping and delineations, botanical surveys, and endangered species act documentation at eleven bridge overpasses along the I-5 corridor from Salem to Eugene. ODOT proposes to increase the vertical clearance of the bridges, which will require extensive ground disturbance. Sarah and field technicians delineated about 45 wetlands and waterways at 11 bridge sites. Sarah prepared the delineation report and facilitated concurrence from the Department of State Lands (DSL). Sarah also prepared the JPA and facilitated approval from DSL and the Corps.

Graves Quarry Goal 5 Wildlife and Riparian Inventory, Molalla, Oregon. ***Project Manager and Lead Field Scientist.*** Sarah conducted a wildlife habitat and riparian inventory at a proposed rock quarry expansion site for compliance with Goal 5. The site covers 80 acres and is bisected by a fish-bearing stream. Sarah and another ESA Adolfson scientist surveyed for rare plants, habitat types and condition of habitat types in the project area. She also assessed the condition of the riparian zone for wildlife and fish habitat functions. She prepared a report describing results of the inventory for review by ODFW and

Clackamas County. Prior to field work, Sarah reviewed the Oregon Natural Heritage Database, StreamNet, and ODFW fish habitat maps. Sarah also corresponded with ODFW fish biologists regarding the likely presence of salmonids and quality of fish habitat on-site.

Draft Environmental Impact Statement (DEIS) for Bus Rapid Transit, Lane Transit District, Eugene, Oregon. *Project Staff*. Sarah is assisting with a wetland inventory and functions and values assessment of wetlands located along the project alternatives for this rapid bus transit (RBT) project. Lane Transit District is proposing to extend RBT into West Eugene to reduce congestion and promote economic development. Sarah and another ESA Adolfson wetland scientist established data plots on accessible parcels and estimated the extent of about 40 wetlands using aerial photographs of the parcels. Sarah will prepare the wetland baseline condition narrative and impact analysis portion of the DEIS.

Local Wetland Inventory, Lakeview, Oregon. *Project Scientist.* Sarah assisted with the processing and quality control of field data for this wetland inventory in central Oregon. Sarah also assisted with preparing maps and finalizing the inventory for local and state approval.

Wetlands Management Plan for the Confederated Tribes of the Grand Ronde, Grand Ronde, Oregon. *Project Staff*. Sarah assisted with the development of a wetlands management plan that addressed management, development, and mitigation for wetlands on Confederated Tribes of the Grand Ronde lands. Sarah helped conduct the functions and values assessment of the Tribal wetlands using the hydrogeomorphic (HGM) method for 10 sites. The HGM assessment, along with socio-economic factors, was used to assign the wetlands one of three categories: protect, enhance, and potentially develop.

ODOT Region 3 Wetlands, Douglas and Josephine Counties, Oregon. *Project Scientist.* Sarah performed delineations and wetland function assessments for this multi-site highway improvement project. At the Calapooya Creek Bridge site on OR 138, Sarah determined OHWL and verified a previous wetland delineation. At the Jumpoff Joe site, Sarah delineated over 40 wetlands and waterways within a 15-mile corridor along I-5 near Grants Pass. For the Del Rio realignment project in Roseburg, Sarah delineated wetlands, assessed the functions and values of over 20 wetlands, and prepared the wetland delineation report. DSL provided concurrence on the report with minimal revisions. The ODOT project manager Brad Livingston is quoted as saying, "ESA Adolfson provided quality deliverables in a timely fashion for one of southwest Oregon's most complex interchange improvement projects affecting wetlands resources."

ALISON SIGLER

Staff Scientist

Alison has five years of professional experience supporting environmental projects. She assists with wetland delineations and habitat assessments in Oregon, Washington and Idaho. She prepares biological assessments, wetland delineation reports, wetland functional assessment and impact reports, compensatory wetland mitigation reports, and other documents necessary for permitting. Alison also has experience with ground-truthing LiDAR imagery to wetlands and has experience with data management and GIS analysis.

Education

B.S., Biology, Washington State University, Pullman, Washington

Basic Wetland Delineation Training, Portland State University, Portland, Oregon

GIS for Natural Scientists, Portland State University, Portland, Oregon

5 Years of Experience

Relevant Experience

Wetland Delineation Report and Buffer Assessment, Clackamas County, Oregon. ***Staff Scientist.*** Alison is assisting with a wetland delineation report of an industrial-zoned parcel in Clackamas County. A wetland delineation and buffer assessment is necessary for proposed expansion of the existing facility. Alison's contribution to the report includes reviewing and summarizing existing information, a site visit and photo documentation. The report is written following requirements from Oregon Department of State Lands and Clackamas County.

Draft Environmental Impact Statement (DEIS) Lane Transit District, Eugene, Oregon. ***Staff Scientist.*** Alison is assisting with a wetland inventory and functional assessment analysis of wetlands located along the project alternatives for this rapid bus transit (RBT) project. Lane Transit District is proposing to extend RBT into West Eugene to reduce congestion and promote economic development.

Ground-Truthing LiDAR Imagery. Cowlitz, Yakima and Skamania Counties, Washington. ***Staff Scientist.*** Alison conducted field work ground-truthing LiDAR imagery to check for image accuracy. Tasks included interpreting aerial photos and LiDAR imagery, collecting sample plot survey information including identifying and measuring trees and shrubs, reviewing and editing collected data superimposed on LiDAR imagery.

ODOT Region 5 US 26 Culvert Repairs Project, Grant County, Oregon. ***Staff Scientist.*** Alison is preparing a biological assessment and assisting with preparation of a wetland delineation report required for the US 26 Culvert Repairs Project. This work involves replacing or upgrading four culverts on four streams in the Upper John Day River Basin, improving fish passage, stream flow and gradients. Tasks include collecting and summarizing background information and aiding in the determination of potential action areas and report drafting. Alison updated the following chapters of the Biological Assessment: Introduction, Environmental Baseline, and Natural History and Species Occurrence.

Compensatory Mitigation Plan Monitoring and Report Corvallis, Oregon. *Staff Scientist.* Alison conducted vegetation and woody species monitoring and compiled the annual monitoring report in support of Corvallis Station's compensatory wetland mitigation. Corvallis Station is a compensatory wetland mitigation site in its third year of monitoring. Tasks include identifying and assessing survival and cover of woody shrubs and vegetation, photo documentation, writing and editing the monitoring report. The report followed requirements set by Army Corps of Engineers and Oregon Department of State Lands.

Sandy River Conduit Relocation Construction Monitoring, Clackamas County, Oregon. *Staff Scientist.* The Portland Water Bureau is burying Conduits 2 and 4 of the City's drinking water system eighty feet below ground at the Sandy River crossing. As part of the construction monitoring over-sight provided by ESA Adolfson, Alison is reviewing daily logs recorded by the Design-Builder to ensure compliance with environmental permits and approvals issued for the project, including a Removal-Fill permit, Section 404/Section 10 permit, and a Biological Opinion. She updates the bi-weekly monitoring report each month and periodically conducts site visits to evaluate environmental compliance.

Eastmoreland Golf Course Tree Inventory, Portland, Oregon. *Staff Scientist.* Alison is assisting with a comprehensive tree inventory which involves identifying species and measuring tree diameters on the Eastmoreland Golf Course. She is also assisting with the data processing and quality control of the data in GIS. The course was planted a century ago with native and non-native species. The goal of this inventory is to identify trees to remove for the purpose of improving play, improving air circulation in the tree canopy, and improving the overall health of the landscaping. ESA Adolfson staff identified approximately 60 different tree species and surveyed over 1,300 trees using Global Positioning Systems (GPS).

Biological Assessment Survey for Pipeline Transmission. Mount Hood National Forest, Oregon. *Staff Scientist.* Alison assisted with wetland delineations; noxious weed and sensitive species surveys; wildlife habitat surveys in support of a biological assessment for a pipeline transmission project. She was responsible for field data collection and management. The project goal was to record ecological conditions of the potential natural gas pipeline corridor to determine project impacts.

GIS Mapping for Wild Salmon Conservation, Portland, Oregon. *Staff Scientist.* Alison created maps in GIS in support of salmon conservation non-profit research. She expanded and reorganized the GIS data server, reviewed and added metadata as needed and repaired missing data on existing maps.

MIKE LEECH

Senior GIS Analyst

Mike is a Senior GIS Analyst with over 8 years of experience in GIS database development, analysis, management and cartography in natural resource management. He is an expert in design of GIS-linked MS Access databases for robust storage and retrieval of information. Mike has used high resolution LiDAR data for several projects and is currently coordinating the LiDAR data acquisition for the Chehalis River basin through the Chehalis Flood Authority. He is adept at providing technical solutions to complex environmental problems using GIS. He has also developed a curriculum of intensive hands-on courses for the Northwest Environmental Training Center in areas of GIS software applications, spatial database development and information management. In addition, Mike also supports all of the GPS technology used by field staff in the Pacific Northwest region.

Education

M.S. Geography, Western Washington University

Emphasis in Resource Conservation and Management

B.A. Biology, Indiana University

B.A. Environmental Studies, Indiana University

Affiliations/Activities

Association for American Geographers (AAG)

NW GIS Users Group

Relevant Skills

Database Development

GIS Manager

Modeler

Technical Lead

Natural Resource Policy

Public Outreach

Shoreline Planning

8 Years of Experience

Relevant Experience

ODOT Region 3 Wetlands, Douglas and Josephine Counties, Oregon.
GIS Analyst. Mike provided GPS and GIS technical support for this project and also was responsible for preparing the maps and figures for the reports. Mike supported the field staff with Trimble GeoXT handheld GPS units and led the post-processing and conversion to GIS format. Mike also helped to deliver the digital data products to the ODOT R3 staff.

Birch Bay Watershed Characterization and Restoration Prioritization, Whatcom County, Washington. ***GIS Analyst.*** Mike worked with project staff to develop and apply a watershed characterization approach that synthesizes the findings of ecosystem process and habitat diversity models with models of potential land use change within the within the Birch Bay watershed of Whatcom County. Mike used high resolution LiDAR data and assisted with adapting and applying remote sensing protocols for identifying and characterizing wetland and riparian conditions within the watershed. He has helped to support the build-out scenario models for the Birch Bay watershed to track potential development patterns and impacts within the watershed.

Chehalis River Basin Flood Authority, Washington. ***Database Developer/GIS Analyst.*** The Chehalis River Basin Flood Authority was established to address frequent flood problems in the basin. ESA Adolfson is providing facilitation and other services to assist the Authority. Mike coordinating the LiDAR data acquisition for the Chehalis River basin through the Chehalis Flood Authority. His data interpretation and GIS analysis is in support of the development of a basin-wide Comprehensive Flood Hazard Management Plan.

Shoreline Master Program Update, Pierce County, Washington. ***GIS Developer/Manager.*** Mike is coordinating GIS analysis and mapping to support Pierce County's SMP Update. He is also working with the County's Technical Advisory Group, made up of County staff, Department of Ecology staff, tribal representatives, and other stakeholders. As part of this project, Mike developed a web-based application using ArcGIS Server to support the technical document review process for the project team and includes over 80 data layers from a variety of sources. He used high resolution LiDAR data and prepared a series of landscape analysis maps to support the inventory and characterization. Mike has also attended and presented information to the shoreline technical advisory group as well as helped with the facilitation of the public working group meetings.

Disturbance Mapping Project, USACE, Walla Walla, Washington. ***GIS Manager/Database Developer.*** Mike is the GIS/Database Coordinator for the USACOE Walla Walla District Disturbance Mapping Project. Mike and his GIS support staff created a comprehensive database and GIS mapping system to depict areas of earth disturbance related to dam construction and related facilities. Mike is supervising other GIS staff in geo-referencing scanned historical documents and digitizing archaeological resources that may have been disturbed previously through excavation, shoreline erosion, or other construction activities. The final product delivered to the USACE was a robust GIS-linked Access database and a companion bound hard copy map atlas. Mike also prepared a hands-on training seminar with the project staff at the Walla Walla District office to demonstrate the applications of the digital data as it relates to on-current/on-going projects at the CORPs.

Salmon Fisheries Management Tool, Upper Skagit Indian Tribe, Sedro-Woolley, Washington. ***Database Developer/GIS Analyst.*** Mike worked closely with the Natural Resources & Fisheries staff to develop an in-season management tool based on 20 years of salmon catch data from the Skagit River for the Upper Skagit Indian Tribe. Mike developed an easy-to-use database and facilitated statistical analysis (linear regression modeling) for in-season updates to fisheries biologists. Mike also provided technical support, including training and comprehensive manuals for Microsoft Access databases and ArcGIS 9.x projects. He was responsible for the development of GIS-Linked MS Access databases for Public Works, Environmental Planning and Natural Resources Departments Other projects include CAD conversion of parcel data to GIS data, ortho-rectification of historical aerial photographs, and production of maps for grants and reports.

Paul R. Adamus, PhD

Dr. Paul Adamus is the author of ORWAP, the new wetland assessment tool sponsored by the Department of State Lands and EPA, and whose use is supported by the Corps of Engineers and other agencies. While developing this he applied it to 220 wetlands throughout Oregon, including many in Lane Couty. For DSL, he has trained nearly 100 agency personnel and consultants in the use of ORWAP. He previously developed both of DSL's "hydrogeomorphic" (HGM) methods for assessing wetlands and applied them to selected Lane County wetlands. Last year, OWEB competitively selected Dr. Adamus to conduct ecological audits of their wetland projects throughout the Willamette Valley, in which he applied ORWAP and surveyed vegetation and soils at 60 sites, including 12 in Lane County. He also has assessed wetlands for the Corvallis Natural Features Inventory (using OFWAM); for Juneau, Alaska; for Crater Lake National Park; and for Island County, Washington. He has twice been invited to testify on wetland matters to the U.S. Congress, and was chosen as the sole expert witness on major wetlands case in Michigan. He is best known as the author of WET (Wetland Evaluation Technique), developed originally for the Federal Highway Administration in the early 1980's, and used widely by federal and local agencies in the decade that followed. Over the past 35 years he has authored over 100 publications, many during the 10 years he was part of EPA's National Wetlands Research Program based in Corvallis. He currently is using LiDAR with NWI and other spatial data to complete a Willamette Wetlands Database in collaboration with EPA, Oregon State University, and The Wetlands Conservancy.

Education

Ph.D. Wildlife Science, Oregon State University, Corvallis
M.S. Biology (Aquatic), University of Utah, Salt Lake City
B.S. Wildlife Science, University of Maine, Orono

Current Positions

Adamus Resource Assessment, Inc., Corvallis, Oregon. Principal. 1997-present.
Oregon State University, Corvallis, Oregon (2002-present)
College of Oceanographic and Atmospheric Sciences, Assistant Professor (Courtesy)
Environmental Sciences Graduate Program (Water Resources)

Wetland Program Consultations
State/Tribe Wetland Program Consultation:
North Carolina (Dept. Environmental Management)
Illinois (Dept. of Conservation)
Maine (State Planning Office)
Washington (Dept. of Ecology)
Oregon (Dept. Environmental Quality, Department of State Lands)
Oklahoma
Michigan
Confederated Tribes of the Umatilla Indian Reservation

Regional Wetland Functional Assessment Projects:
Klamath Region (Lassen Volcanic & Crater Lakes National Parks)
Oregon Coast: HGM data collection, model development, and application

Willamette Valley, Oregon: HGM data collection, model development, and application
Juneau, Alaska: Wetlands Management Plan (the second such plan approved in the U.S.)
New Jersey (Hackensack Meadowlands, Raritan Estuary)
Salt Lake City, Utah: Wetlands Advanced Identification Project
Southern Maine: Wetlands Advanced Identification Project
Washington (Mill Creek Watershed): Special Area Management Plan
Washington (Puget Sound - Island County)

Selected Publications

Adamus, P., J. Morlan, and K. Verble. 2009. *Oregon Rapid Wetland Assessment Protocol (ORWAP): calculator spreadsheet, databases, and data forms.* Oregon Dept. of State Lands, Salem, OR. http://oregonstatelands.us/DSL/WETLAND/or_wet_prot.shtml

Rempel, M., P. Adamus, and J. Kagan. 2009. *Oregon Wetlands Explorer: an internet tool for ORWAP wetland assessment support and data archiving.* Oregon State University Library and Institute for Natural Resources, Oregon State University, Corvallis, OR. http://oregonexplorer.info/wetlands/orwap/

Willamette Partnership, Parametrix, and P.R. Adamus. 2009. *Crediting and Debiting of Ecosystem Services*. Counting on the Environment Project: http://www.willamettepartnership.org/ongoing-projects-and-activities/nrcs-conservation-innovations-grant-1/nrcs-conservation-innovations-grant

Adamus, P.R. and K. Bosworth. 2007. *Delineation and Functional Rating of Jurisdictional Wetlands on Potentially Developable City-owned Parcels in Juneau, Alaska.* Community Development Department, Juneau, AK. http://www.juneau.org/cddftp/documents/FinalWetland1-011707.pdf

Adamus, P.R., M. Pakenham-Walsh, and N. McCarten. 2006. *Hydrogeomorphic (HGM) method for assessing functions and values of vernal pool wetlands of the Agate Desert, Medford, Oregon*. Report to Oregon Dept. of State Lands, Salem.

Adamus, P.R. and C.L. Bartlett. 2008. *Wetlands of Crater Lake National Park: An Assessment of Their Ecological Condition*. Natural Resource Technical Report NPS/KLMN/NRTR—2008/115. National Park Service, Fort Collins, CO. http://science.nature.nps.gov/im/units/klmn/Inventories/Adamus_Wetland/Adamus_Wetland.cfm

Adamus, P.R., J. Burcar, K. Harma, C. Luerkens, A. Boscolo, J. Coleman, and M. Kershner. 2006. *Wetlands of Island County, Washington: Profile of Characteristics, Functions, and Health.* Report to Island County Dept. of Planning & Community Development, Coupeville, WA.Internet: http://www.islandcounty.net/planning/criticalareas/wetlands/Phase1_Complete-doc.pdf

Adamus, P.R., J. Webster, C. Shippentower, S. O'Daniel, D.E. Williams, and S. Minthorn. 2002. *Umatilla River Floodplain and Wetlands: A Quantitative Characterization, Classification, and Restoration Concept.* Confederated Tribes of the Umatilla Indian Reservation, Pendleton, OR. http://www.umatilla.nsn.us/database/wetlands

Adamus, P.R. and D. Field. 2001. *Guidebook forHydrogeomorphic (HGM)–based Assessment of Oregon Wetland and Riparian Sites. I. Willamette Valley Ecoregion, Riverine Impounding and Slope/Flat Subclasses. Volume IA: Assessment Methods.* Oregon Department of State Lands, Salem, OR. http://statelands.dsl.state.or.us/hgm_guidebook.htm

Adamus, P.R. and L. Fish. 2000. *Biological Evaluation of the Willamette River and McKenzie River Confluence Area. II. Restoration of Wildlife and Riparian Habitat*. Report to the McKenzie Watershed Council, Springfield, OR

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Fax: (541) 822-1053

Resume

Education: University of California at Davis. B.S. 1974: Wildlife and Fisheries
University of California at Davis. M.S. 1976: Aquatic Ecology

Accreditation:
1997: Wetland Delineation Training Certification from the Wetland Training Institute
1998: Wetland Mitigation, Construction, and Installation from the Wetland Training Institute
2009: ODOT Biological Assessment Certification
2009: ORWAP Training Program (DSL/Corps sponsored)

Memberships:
The Native Plant Society of Oregon: 1997-present
The Wildlife Society: 1997-present, Board Member 1999-2001
American Fisheries Society: 1997-present
Society of Wetland Scientists: 1997-present
North American Butterfly Association: 2004-present
Friends of Buford Park Stewardship Technical Advisory Committee: Member: 2002-2004, Chair 2003-2004
McKenzie Watershed Council: At-Large Partner 2006-2008
Long Tom Watershed Council Small Grant Review Committee: 2005-2007

Certification: Women Business Enterprise (WBE) Certification #2031

Professional Experience:

1998-present: Ecologist and owner of Environmental Solutions LLC. Wetland delineations; wetland function assessments; mitigation planning, project supervision, and monitoring; Joint Removal Permit applications; botanical inventories; vegetation community surveys and mapping; Biological Assessments and Evaluations; Natural Features Assessments per State Goal 5; wildlife habitat surveys and assessments; Environmental Assessments. Nancy Holzhauser is an ecologist and owner and sole proprietor of Environmental Solutions LLC. Environmental Solutions LLC specializes in botanical, wetland, and biological consulting services, including plant inventories, rare plant surveys, wetland delineations, Joint Removal/Fill Permit applications, wetland compensatory mitigation and monitoring plans, biological assessments, evaluations, and reports, and vegetation and habitat mapping. Nancy has lived in the southern Willamette River valley since 1980, and has an extensive knowledge of the ecology of Oregon, as well the various government agencies and regulations within the state. She is proud of the working relationship that she has developed with representatives from the US Forest Service, US Fish and Wildlife Service, NOAA Fisheries, Oregon Department of State Lands, and the US Army Corps of Engineers.

Wetland delineations, permit applications, mitigation planning, project supervision, and monitoring:
Numerous wetland delineations, inventories, Joint Removal/Fill Permit Applications, wetland function assessments, wetland and riparian mitigation and restoration planning, mitigation site design, mitigation site construction supervision, and mitigation monitoring for private clients and public agencies throughout

western and central Oregon. Wetland delineations performed using the 1987 US Army Corps of Engineers Manual and 2008 Manual Supplement, and have included lands considered natural as well as atypical or altered sites. 1998-present.

- Oregon Rapid Wetland Assessment Protocol (ORWAP) testing, evaluated ORWAP model on three different wetland types as part of Oregon Department of State Lands' (DSL) testing during its development; also provided consultation to the Technical Advisory Team regarding the ORWAP process. Client: Oregon Department of State Lands. 2008.
- Peer review committee member on DSL review team. 2006. Review of US Army Corps of Engineers Wetland Delineation Manual Supplement for Western Mountains, Valleys, and Coast.
- Wetland delineation, function assessment, 404 permit application, mitigation plan, and mitigation site construction oversight for 80-acre degraded site in west Eugene, including historic log pond. Client: Eugene Water and Electric Board. 2005-present.
- Wetland function assessment, 404 permit application, mitigation plans, and mitigation site construction oversight for 50-acre degraded site used as mitigation site for Lane County landfill upgrade project located south of Eugene. Client: Lane County Public Works Waste Management Division. 2005-present.
- Wetland delineations, wetland monitoring surveys and reports, wetland function assessments, and mitigation planning and site design for EWEB's hydropower upgrade project, including wetlands along and within the McKenzie River and Leaburg Lake in the west Cascade foothills. Client: Eugene Water and Electric Board. 2001-present.
- Wetland mitigation site oversite, monitoring for 1-acre mitigation site in Cottage Grove. Client: City of Cottage Grove. 2007-present.
- Wetland delineation, function assessment, 404 permit application, mitigation plan, mitigation site construction oversite and monitoring for 2-acre wetland on central Oregon coast. Client: Branch Engineering for the City of Florence. 2005-present.
- Wetland delineation, function assessment, 404 permit application for 65-acre side channel floodplain of Willamette River in Eugene. Client: City of Eugene. 2009.
- Wetland delineations, Joint Removal/Fill Permit Applications, wetland function assessments, mitigation and monitoring plans, and mitigation monitoring for projects associated with a wastewater treatment plant and associated facility construction upgrades in Veneta. Client: City of Veneta. 1999-present.
- Wetland delineation, function assessment, 404 permit application, and mitigation plan, for 20-acre interdunal site on central Oregon coast. Client: Arlie & Company. 2007-present.
- Wetland delineations for road projects, including wetland function assessments, and identification of potential mitigation areas in Willamette Valley and Coast Range. Client: Lane County Public Works Dept. 2002-2008.
- Wetland delineation, function assessment, 404 permit application on 2 mile linear project on agriculturally altered land in west Eugene. Client: City of Eugene. 2006.
- Wetland delineation and wetland function assessment on 240-acre site managed for ryegrass production in west Eugene. Client: City of Eugene 2006.
- Wetland delineation and function assessment on 2-mile linear project in Florence, on central Oregon coast. Client: Branch Engineering. 2005-2006.
- Wetland restoration plan in Yachats, on central Oregon Coast. Client: Yachats Commons Park Advisory Committee. 2005-2006.
- Wetland delineation on 40-acre forested site with headwater streams in south Eugene. Client: Green Development Inc. 2004.
- Wetland delineation, wetland function assessment on a 140-acre agricultural ryegrass field in the southern Willamette Valley. Included preparation of Joint Removal/Fill Permit application for proposed energy facility and wetland mitigation plan for 55-acre mitigation site. Client: West Cascade Energy LLC. 2001-2003.
- Preparation of Exhibit J (Wetlands) and I (Soils) for Energy Facility Site Certificate Application for natural gas-fired energy facility north of Eugene. Client: West Cascade Energy LLC. 2001-03.

- Wetland delineations, function assessments, and 404 permit applications on agricultural land and pasture land ranging in size from 5-240 acres, in the Willamette Valley. Clients: City of Eugene 2004-present; Lane County Public Works Dept. 2001-2008, City of Coburg 2004, West Cascade Energy LLC. 2001-2003.
- Wetland delineation, Joint Removal/Fill Permit Application, mitigation plan, and mitigation monitoring for residential development in Cottage Grove. Involved creating 1 acre of palustrine scrub/shrub and emergent wetlands, converting permanent pond into seasonal for red-legged frog habitat. Client: Arlie & Company. 2000-2005.
- Wetland delineations and 404 permit application in conjunction with a recreation plan along the Columbia River and 2 tributaries to the Columbia River. Client: City of Mosier. 2001-2002.
- Wetland delineations, function assessments, 404 permit application for a 7-mile recreation trail along the Columbia River in The Dalles. Client: North Wasco Parks and Recreation District. 2000-2002.
- Local Wetland Inventory. Participated on team under Satre Associates for Coburg Local Wetland Inventory. 1999.

Biological Surveys, Biological Assessments, and Environmental Assessments:
Biological Assessments and Evaluations, Natural Features Assessments per Statewide Goal 5, wildlife habitat surveys and mapping, comprehensive plant inventories, vegetation community mapping, and comprehensive rare plant surveys. Work has focused on the Willamette Valley, Cascade Mountains, and Coast Range in a variety of habitat types including upland and wetland forested, shrub, and meadow communities for sites ranging in size up to 1200 acres. Inventories, mapping, and assessments included Federal and State listed and proposed Threatened and Endangered species and Federal candidate species such as Bradshaw's lomatium, Willamette daisy, Kincaid's lupine, wayside aster, white-topped aster, Fender's blue butterfly, bald eagle, northern spotted owl, streaked horned lark, Oregon chub, chinook salmon, bull trout as well as Federal Species of Concern and State Sensitive species including northern pond turtle, northern red-legged frog, pileated woodpecker, western gray squirrel, olive-sided flycatcher, shaggy horkelia, thin-leaved peavine, tall bugbane. 1997-present as well as from 1980-1984 for the USFS McKenzie Ranger District.

- Natural Features Assessments following Goal 5 requirements for Planned Unit Developments developed by the City of Eugene, including wildlife and plant surveys, rare wildlife and species habitat inventories and assessments, and native plant community inventories and mapping in upland, wetland, and riparian communities. Work includes participation on project design teams to assist with development of site design per Goal 5 requirements, focusing on minimization of impacts to significant natural features and mitigation planning as well as presenting testimony as needed. Clients: City of Eugene 2008; Green Investments Inc. 2004-2007; Breeden Brothers 2004-2006; McKay Development 2004-2005.
- Environmental Assessment for City of Veneta: Community Pool. Client: City of Veneta. 2009.
- Biological Assessment for 2-mile long bike path along the Willamette River; site includes Federally listed threatened spring chinook salmon and migratory birds. Client: City of Eugene. 2009.
- Biological Assessment for 20-acre expansion project in Short Mountain Landfill; site included Federally listed threatened and endangered spring chinook salmon, Oregon chub, bald eagle, and Bradshaw's lomatium. Client: Lane County. 2005-2006.
- Rare plant and animal surveys and assessment for potential impacts from proposed gravel mining operation in Willamette River floodplain. Client: L. Sherlock PC. 2004-2005.
- Rare plant survey and vegetation community mapping on 120-acre upland site in southwest Eugene, included oak woodland and upland meadow habitats. Client: City of Eugene. 2004.

Loverna Wilson, Environmental Consultant **Botany/Plant Ecology**

P.O. Box 2284, Corvallis, OR 97339 (541)758-3403

RESUMÉ

M. LOVERNA WILSON
Plant Ecologist and Wetland Scientist

Education:

M.S. 1982, Oregon State University, Botany/Plant Ecology
B.S. 1963, Oregon State University, Business Education

Employment:

1983-present Principal and Owner
Loverna Wilson, Environmental Consultant
Corvallis, Oregon

1979-1983 Plant Ecologist
Beak Consultants Incorporated
Portland, Oregon

Experience:

Project experience includes a broad background in vegetation and wetland sampling, data interpretation, and project management. A large share of this work has been in the Pacific Northwest, although she has also conducted numerous studies in western Montana, Wyoming, Colorado, Idaho, and northern California. The following is a summary of her primary areas of expertise.

- Wetland and riparian assessments and boundary delineations, including field studies, report preparation, agency consultation and permitting guidance.
- Wetland mitigation, including restoration, creation, and enhancement design, and post-construction monitoring.
- Impact assessment and mitigation design for both wetland and upland sites.
- Threatened and Endangered plant species surveys and habitat assessments.
- Vegetation habitat analysis, including quantitative and qualitative field sampling, plant community determinations and descriptions.
- Vegetation mapping and aerial photo interpretation.
- Wildlife habitat assessments.

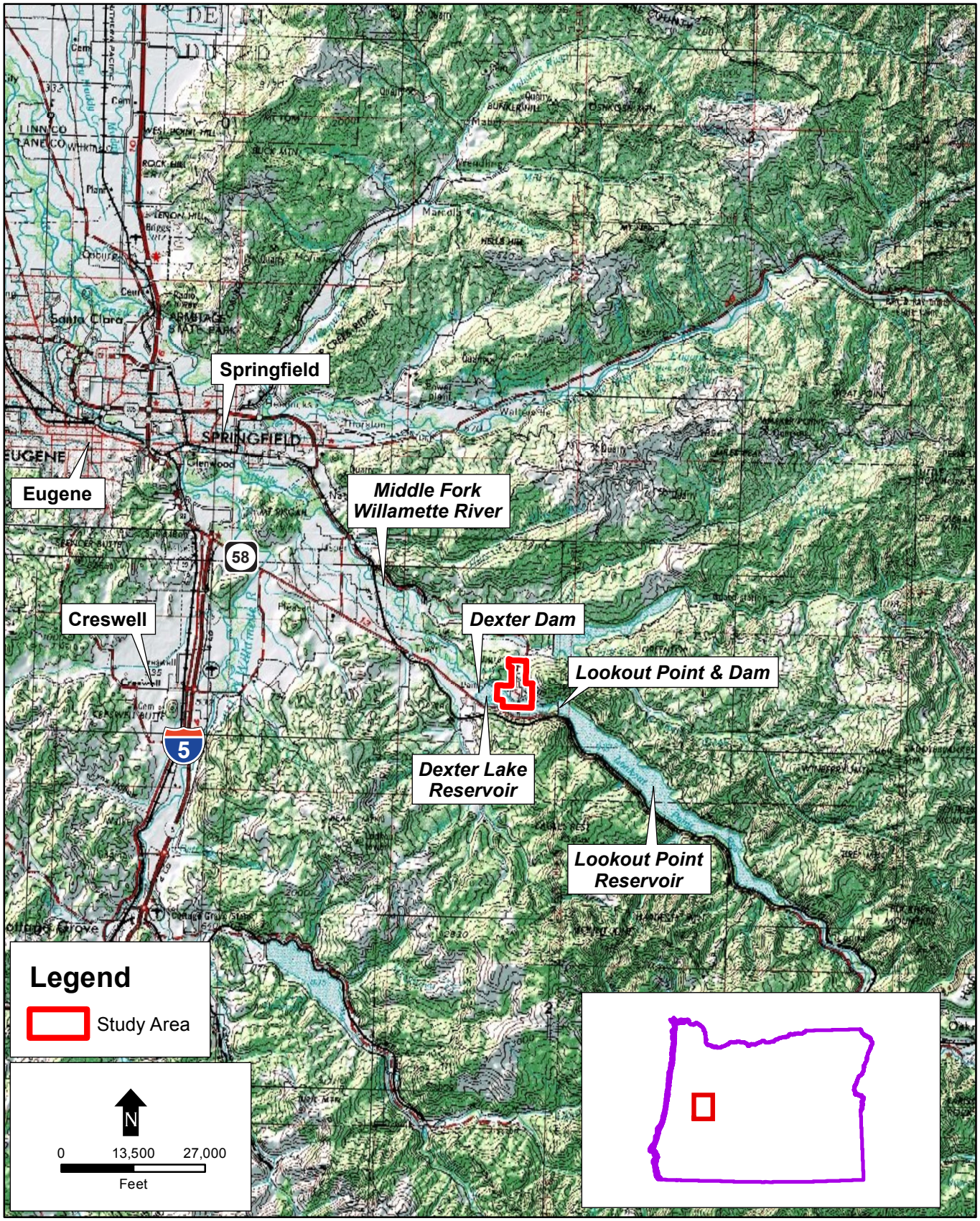
APPENDIX C: FIGURES

Figure 1: Vicinity Map

Figure 2: National Wetland Inventory Map

Figure 3: Soil Survey Map

Figure 4: Topographic Map



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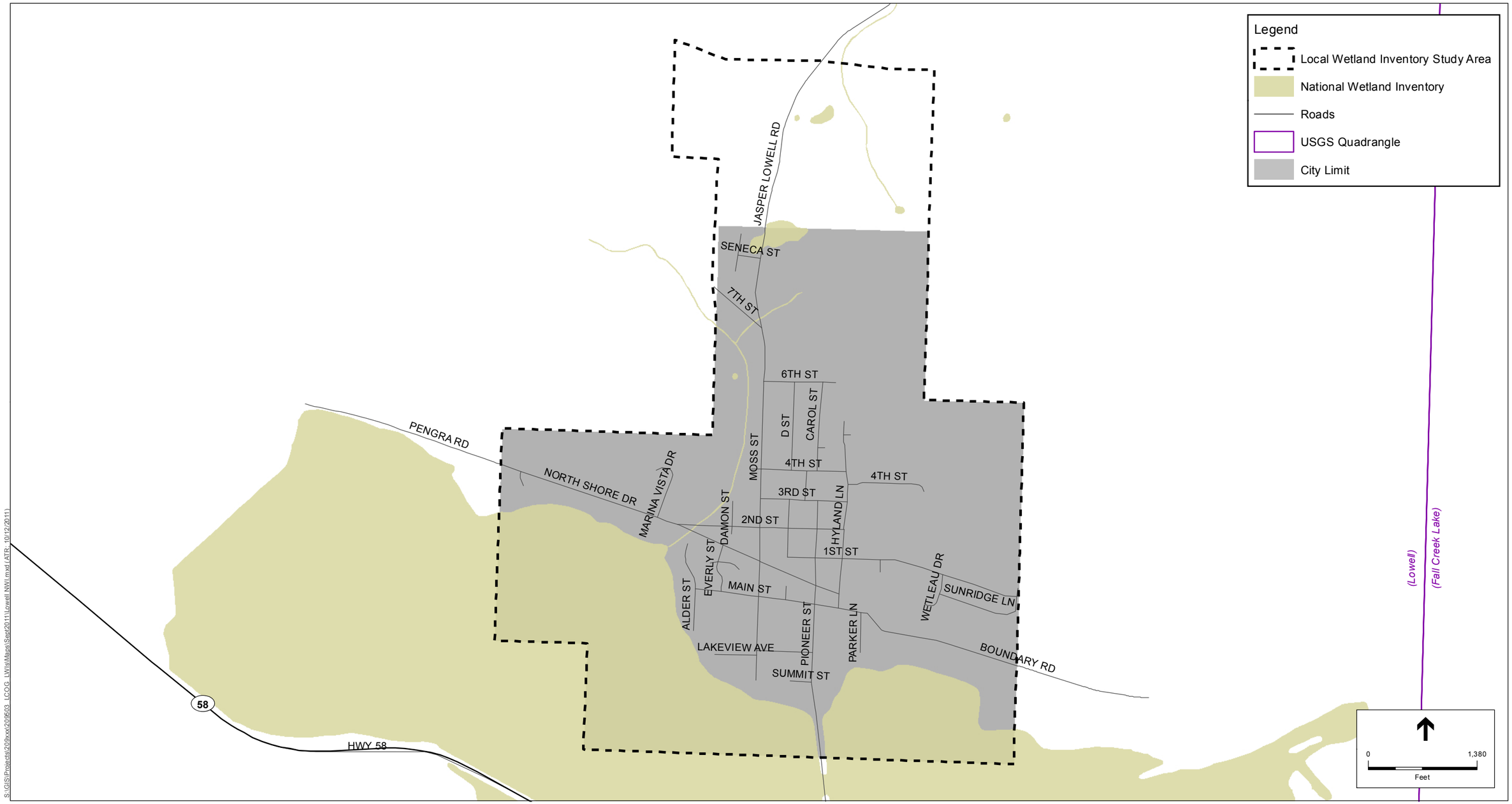
CREATED/EDITED BY: AS/JAB / DATE LAST UPDATED: 09/15/10

SOURCE: ESRI, 2009. LCOG, 2010.

LCOG Local Wetland Inventory. 209503

Figure 1
Lowell Study Area Vicinity Map
Lane County, Oregon



SOURCE: NWI (USFWS), 2009; ODOT, 2010; USGS, 2000

Figure 2
National Wetland Inventory
Lowell, Oregon

Soil Symbol, Description, Hydric
34, Courtney gravelly silty clay loam, All hydric
100, Oxley gravelly silt loam, Partially hydric
102C, Panther silty clay loam, 2 to 12 percent slopes, All hydric
105A, Pengra silt loam, 1 to 4 percent slopes, All hydric
107C, Philomath silty clay, 3 to 12 percent slopes, Not hydric
113C, Ritner cobbly silty clay loam, 2 to 12 percent slopes, Not hydric
113E, Ritner cobbly silty clay loam, 12 to 30 percent slopes, Not hydric
115H, Rock outcrop-Kilchis complex, 30 to 90 percent slopes, Not hydric
116G, Rock outcrop-Witzel complex, 10 to 70 percent slopes, Not hydric
121B, Salkum silty clay loam, 2 to 8 percent slopes, Not hydric
121C, Salkum silty clay loam, 8 to 16 percent slopes, Not hydric
138E, Witzel very cobbly loam, 3 to 30 percent slopes, Not hydric
138G, Witzel very cobbly loam, 30 to 75 percent slopes, Not hydric
28C, Chehulpum silt loam, 3 to 12 percent slopes, Not hydric
43E, Dixonville-Philomath-Hazelair complex, 12 to 35 percent slopes, Not hydric
52B, Hazelair silty clay loam, 2 to 7 percent slopes, Partially hydric
52D, Hazelair silty clay loam, 7 to 20 percent slopes, Partially hydric
89C, Nekia silty clay loam, 2 to 12 percent slopes, Not hydric
89D, Nekia silty clay loam, 12 to 20 percent slopes, Not hydric
89E, Nekia silty clay loam, 20 to 30 percent slopes, Not hydric
89F, Nekia silty clay loam, 30 to 50 percent slopes, Not hydric
W, Water, Unknown

Legend
Local Wetland Inventory Study Area
Soil Type (NRCS (USDA), 2006)
Roads
USGS Quadrangle
City Limit

SENECA ST
7TH ST
6TH ST
4TH ST
3RD ST
2ND ST
1ST ST
MAIN ST
LAKEVIEW AVE
SUMMIT ST
JASPER LOWELL RD
MOSS ST
D ST
CAROL ST
DAMON ST
HYLAND LN
EVERLY ST
ALDER ST
PIONEER ST
PARKER LN
WETLEAU DR
SUNRIDGE LN
MARINA VISTA DR
NORTH SHORE DR
PENGRA RD
BOUNDARY RD
HWY 58
(Lowell)
(Fall Creek Lake)
DAM

0 1,360 Feet

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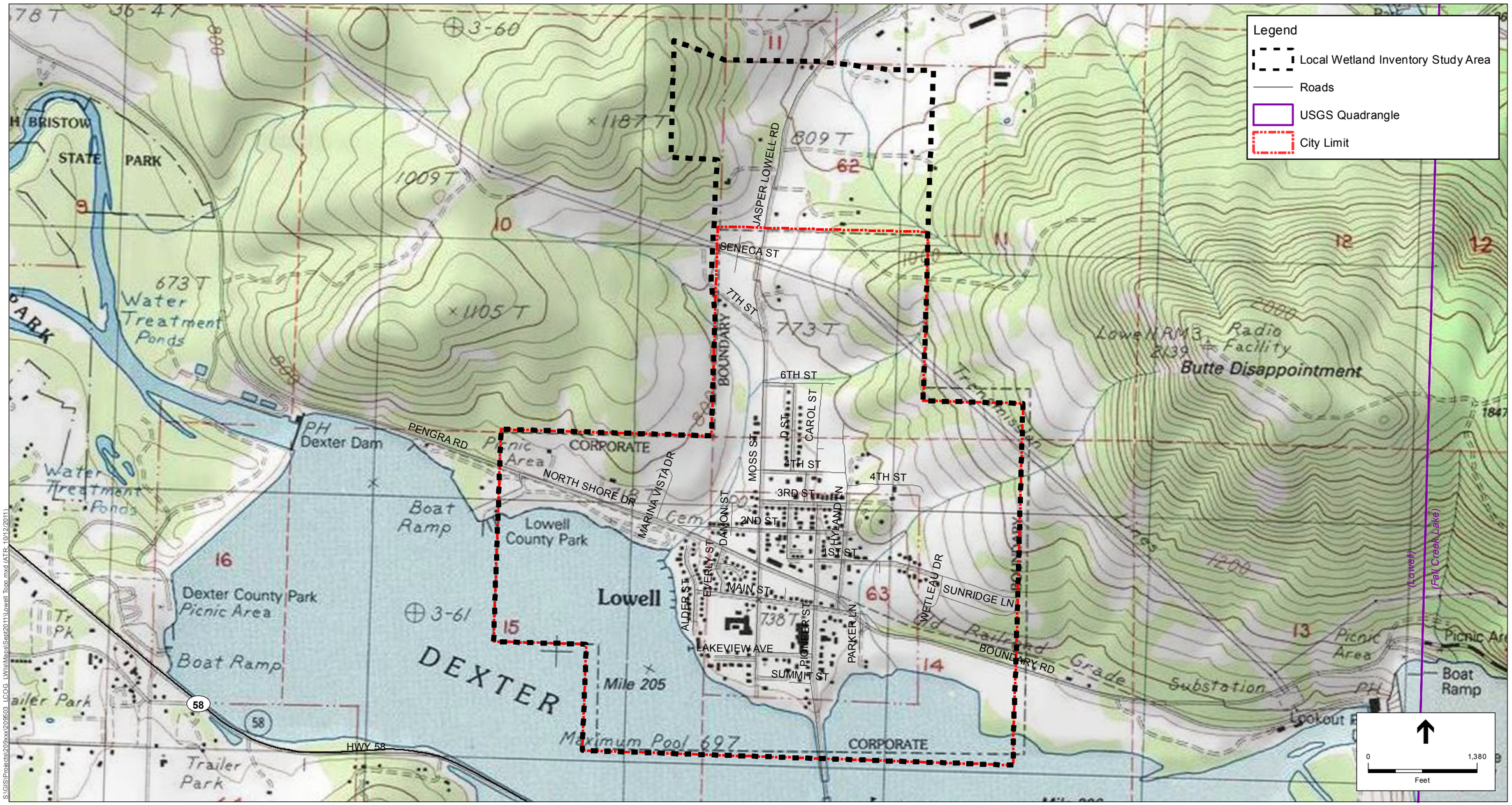
SOURCE: NRCS (USDA), 2006; ODOT, 2010; USGS, 2000

Figure 3
Soil Survey Map
Lowell, Oregon



S:\GIS\Projects\209xx\209503_LCOG_LWIs\Maps\Sept2011\Lowell Topo.mxd (ATR, 10/12/2011)

SOURCE: NHD (USGS), ODOT, 2010; USGS, 2000, 2009

Figure 4
Topographic Map
Lowell, Oregon

APPENDIX D: OFWAM RESULTS

Watershed Characterization

OFWAM Reference Questions

Wetland Characterization Results (Questions 15-38)

Function and Condition Assessment Scores (Wildlife Habitat, Fish Habitat, Water Quality, and Hydrologic Function)

Function and Condition Summary Sheets

Wetlands of Special Interest Scores

Oregon Freshwater Wetland Assessment Methodology
Wetland Characterization - Watershed Setting

Project Number:	**209503.1**
Project Name:	**Lane Council of Governments Lowell Local Wetland Inventory**
1. Drainage Basin:	Upper Willamette Basin
2. Watershed Area:	7.29 sq. miles (defined by Dexter Dam downstream and Lookout Point Dam or Meridian Dam upstream)
3. Average Slope:	10.60%
4. Is the stream flow in the watershed modified by dams, channelization or levees?	Mainstem stream is modified.
5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?	Yes
6. What is the dominant land use in the watershed upstream from the assessment area?	Forested or natural area.
7. Streams in the study area listed as water limited?	Streams or portions of streams within the study area are listed as water quality limited.
8. Water quality condition of stream reaches in the watershed upstream from the assessment area.	Unknown
9. Fisheries and type.	Anadromous: Chinook (stocked by ODFW); Resident (native): chiselmouth, peamouth, northern pike minnow, longnose dace, speckled dace, leopard dace, redside shiner, largescale sucker, three-spine stickleback, sand roller, torrent sculpin, shorthead sculpin Introduced: common carp, brown bullhead, yellow bullhead, mosquitofish, pumpkinseed, warmouth, bluegill, largemouth, smallmouth bass, black crappie, white crappie, yellow perch
10. Are known sensitive, threatened or endangered fish species present in the watershed?	Oregon chub (LT), bull trout (LT) (ORBIC, 2010).
11. Wildlife species:	Migrating / wintering birds: Cackling goose, tundra swan, great egret, ring-necked duck, bufflehead; Breeding birds: Osprey, turkey vulture, red-tailed hawk, American kestrel, common merganser, great blue heron, belted kingfisher, various perching bird species - Swainson's thrush, western tanager, American robin, etc. Mammals : coyote, racoon, voles, moles, shrews, black deer, and black bear. Amphibians/Reptiles : red-legged frog, tree frog, salamanders, pond turtles, garter snakes, gopher snake, and racer.
12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed	Birds: Band-tailed pigeon (SoC), Olive-sided flycatcher (SoC); Mammals : Townsend's western big-eared bat (SoC) (ORBIC, 2010). Amphibians/Reptiles: Northern red-legged frog (SoC)
13. Does the watershed provide a natural corridor for fish or wildlife movement?	Dexter Reservoir and the shoreline provide a movement corridor for wildlife, but not for fish due to dams upstream and downstream on the reservoir.
14. What are the landscape features at both ends of the movement corridor?	This watershed is defined by dams at the upstream and downstream end.

	Wetland 1	Wetland 2	Wetland 3

Wetlands of Special Interest for Protection

The first filter in the Oregon Method is to see whether the wetland is in a management plan, is protected by regulatory rules or statutes, or is uncommon in Oregon. A "yes" answer to any of the following questions will place the wetland into this category and management decisions should be made to protect the site. You still may want to evaluate the functions and conditions of each wetland to give you an overall evaluation of the wetlands in your assessment area. You should note on the Function and Condition Summary Sheet (Chapter VI and Appendix C) the information from this section. You do not need to contact every agency listed, but all those listed have all or some of the information you need.

Question 1

Does the wetland contain threatened, endangered or sensitive species of wildlife, plants, invertebrates or fish? (Either federal- or state-listed. Include species.) If yes, list.

a. Yes
b. No
c. Unknown
List:

Information source

Oregon Natural Heritage Program, The Nature Conservancy, U.S. Fish and Wildlife Service, National Marine Fisheries Service, Oregon Department of Fish and Wildlife, Oregon Department of Agriculture.

Question 2

Is the wetland designated as critical habitat or essential habitat for federal- or state-listed threatened or endangered species of wildlife, plants, invertebrates or fish? If yes, list species.

a. Yes
b. No
c. Unknown
List:

Information source

U.S. Fish and Wildlife Service, National Marine Fisheries Service, The Nature Conservancy.

	Wetland 1	Wetland 2	Wetland 3

Question 3

Is the wetland a dedicated or proposed Registered State Natural Area or Area of Critical Environmental Concern, State Natural Heritage Conservation Area, Federal Research Natural Area, or a Nature Conservancy Preserve?

a. Yes
b. No
c. Unknown
List which it is:

Information source

The Nature Conservancy, the Oregon Natural Heritage Program, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service, National Park Service and Corps of Engineers.

Question 4

Is the wetland of regional or national significance for migratory birds?

a. Yes
b. No
c. Unknown
List which species:

Information source

U.S. Fish and Wildlife Service, Oregon Department of Fish and Wildlife.

Question 5

Is the wetland protected in a local wetland conservation plan or a local comprehensive plan as a Goal 5 or Goal 17 resource?

a. Yes
b. No
c. Unknown

Information source

Local planning office.

Question 6

Is the wetland a designated State Outstanding Resource Water?

a. Yes
b. No
c. Unknown

Information source

Oregon Department of Environmental Quality. (As of 1996, DEQ has not made any such designations.)

	Wetland 1	Wetland 2	Wetland 3

Question 7

Is the wetland a protected area in a recognized federal, state or local management plan, e.g., for a park, refuge or scenic river?

a. Yes
b. No
c. Unknown
List name:

Information source

Oregon Department of Fish and Wildlife, State Parks, U.S. Fish and Wildlife Service, Bonneville Power Administration, Bureau of Land Management, National Park Service, METRO, local parks department.

Question 8

Is the wetland a *protected* mitigation site for a removal-fill permit, federal 404 fill permit, or enforcement action? Protected means there is a legal instrument, such as a conservation easement, that will preclude a wetland impact permit from being issued for this site.

a. Yes
b. No
c. Unknown

Information source

Oregon Division of State Lands, Corps of Engineers, Environmental Protection Agency.

Question 9

Is the wetland a restoration or protected area included in the wetland reserve program administered by the Natural Resources Conservation Service? The length of protection may vary depending on landowner agreements.

a. Yes
b. No
c. Unknown

Information source

Natural Resources Conservation Service, Consolidated Farm Services Agency.

Question 10

Is the wetland considered rare or unique in Oregon? Examples include bogs, vernal pools and old growth forested wetlands (See Appendix G).

a. Yes
b. No
c. Unknown

Information source

The Nature Conservancy, Oregon Division of State Lands, the Oregon Natural Heritage Program.

Wetland 1	*Wetland 2*	*Wetland 3*

Wetland Characterization

The Wetland Characterization is designed for information collection in a systematic manner. The Characterization is divided into a landscape section, for which all the information can be gathered in the office with appropriate maps and references (and maybe a few phone calls), and a site-specific section, which requires field observation and measurement. (*Questions that must be answered in the field are marked with a check.*) You may want to record the observation, not just the letter answer, when given the choice, because you might find the descriptive information useful later. Also, take some blank sheets of paper into the field for making sketches of the wetland area that you can refer to later. Another alternative is to put an overlay on an aerial photo and sketch and note information on the overlay. If done thoroughly, this should prevent you from having to return to the field or having to seek additional information when completing the assessment.

Watershed Notes

The information gathered is used to answer function and condition assessment questions (copies of these questions appear directly following the Characterization). The Characterization should not lead you to any conclusions; this will be done as the assessment sheets are completed.

What you need to take with you into the field:

- Clipboard
- Pencils (various colors for sketching)
- Blank paper to sketch on
- Long tape measure (200 feet if you have one), or measure your pace before going into the field
- Aerial photos (you may want to attach a mylar overlay to draw on)
- Ruler
- Base maps (optional or make copies)
- Binoculars (optional)

Watershed setting

All questions pertaining to the watershed can be answered in the office from aerial photographs, U.S. Geological Service topographical maps, and other reference materials. (See Appendix A.) The answers to these questions are used to give decision makers a broader understanding of ecological functions and land uses in the watershed. The answers are summarized on the Watershed Summary Sheet at the end of the Assessment Questions section.

Drainage basin

The Oregon Water Resources Department has divided the state into 18 drainage basins. Check the map in Appendix H to see which drainage basin contains the study site.

1. What is the name of the drainage basin that contains your assessment area?

Physical characteristics of the watershed being assessed (within the drainage basin)

Topography

2. What is the watershed's area in square miles? The watershed area is often much smaller than the drainage basin (see Appendix E).
3. Calculate the average slope of the watershed (see Appendix F).

Hydrologic profile

4. Is the stream flow in the watershed modified by dams, channelization or levees? (Choose all that are appropriate.)
   a. Tributary streams to the main stem stream are modified.
   b. Main stem stream is modified.
   c. Stream flow is not modified (free-flowing.)
5. Is water being taken out of the stream(s) through active diking, drainage or irrigation districts in the watershed upstream of the assessment area?
   a. Yes.
   b. No.

Watershed Notes

Land uses within the watershed

6. What is the dominant land use in the watershed upstream from the assessment area?
   a. Urban.
   b. Urbanizing (mix of urban, agriculture and forest uses).
   c. Agriculture (farming, ranching or grazing).
   d. Forested or natural area.

Water quality *(Use more specific water quality information, if available. Contact local DEQ office, or call the DEQ lab at (503) 229-5983 for sampling information.)*

7. Consult the most recent State of Oregon Department of Environmental Quality 305(b) Report to determine whether any streams in the study area are listed as a *water quality limited.* (You may want to ask DEQ whether there are any proposed changes.) This information is included in Clean Water Act section 303(d) reporting.
   a. Streams or portions of streams within the study area are listed as *water quality limited.*
   b. No streams or portions of streams within the study area are listed as *water quality limited.*
8. Consult the most recent *Oregon Statewide Assessment of Nonpoint Sources of Water Pollution* to determine the water quality condition of stream reaches in the watershed upstream from the assessment area. (If both "b" and "c" apply, choose "c.")
   a. All upstream reaches are listed as *no problem* (or no data available).
   b. One or more upstream reaches are listed in *moderate* water quality condition.
   c. One or more upstream reaches are listed in *severe* water quality condition.

Watershed Notes

Biological characteristics of the watershed

9. Fisheries: Select all that are appropriate and list type if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

Type

a. Cold water.
b. Warm water.
c. Anadromous.
d. Wild population.
e. Introduced or hatchery populations.
f. None.
g. Other (list).

10. Are known sensitive, threatened or endangered fish species present in the watershed? If so, list which species.

Species

a. Yes.
b. No.
c. Unknown.

11. Wildlife species: Select all that are appropriate and list species if known. (Contact local Oregon Department of Fish and Wildlife office for this information.)

Species

a. Migratory birds.
b. Big game.
c. Nesting birds.

12. Are known sensitive, threatened or endangered plant species or wildlife species other than fish present in the watershed? If so, list which species. (Contact local ODFW office or Natural Heritage Council for this information.)

Species

a. Yes.
b. No.
c. Unknown.

Watershed Notes

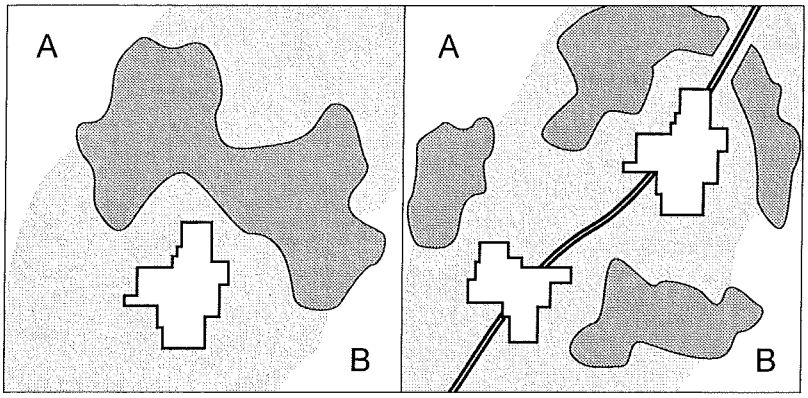


Figure 1. Watersheds as corridors for wildlife movement.
Areas A and B are the end points of a movement corridor through the watershed. Natural areas are shaded darkly, the irregular polygons represent highly developed areas, and the thick black line represents an impassable barrier such as an interstate highway. In the first part of the illustration, the contiguous natural area connects both ends of the corridor. The developed area is a barrier, but it does not obstruct species movement. The second half of the illustration shows fragmented natural areas with an impassable barrier. If the barrier stopped at the smaller developed area and did not continue off the lower left, species movement would still be possible.

13. Does the watershed provide a natural corridor for fish or wildlife movement? (Observe from aerial photographs.) **List whether for fish, wildlife or both.** Consider fences, dams and other barriers to travel. Aerial photographs of the watershed area are the best source of information. Fragmented systems have barriers to movement or a section where the natural area is broken by developed area.

    A corridor is a landscape feature that enables fish or wildlife species to travel between broad geographical areas. (See Figure 1.)

    a. There are contiguous natural areas that allow species movement, and if barriers exist, they do not stop animal or fish movement.
    b. The natural areas are fragmented, but species movement is still possible.
    c. The habitat system is fragmented, and there are barriers to species movement.

14. What are the landscape features at both ends of the movement corridor? (These may lie outside the assessment area.) From an aerial photo, observation or local knowledge, determine whether there are large natural areas at either end of the movement corridor. The natural area does not have to be a wetland.

    a. Large natural habitat areas are at both ends.
    b. One end has a natural habitat area and the other end is developed.
    c. Both ends are developed.

Watershed Notes

	Wetland 1	Wetland 2	Wetland 3

Individual wetland sites

Fill out this part of the characterization for each wetland in the assessment area. Some of the information can be gathered in the office; some must be gathered at the site. You may want to do a rough sketch of the site (doesn't have to be to scale) to refer to back in the office.

Wetland structure and relation to surrounding landscape

✓15. What percentage of the area within 500 feet of the wetland's edge is dedicated to the land uses listed below? (From overlay 2 or in the field.)

It is best to determine the land uses from a recent aerial photo. If an aerial photo is not available, measure 500 feet in the field to get an idea of distance to evaluate. Use the following ranges for your answers for each land-use category:

a. Less than 20%.
b. Between 20% and 50%.
c. Greater than 50%.

1. Open Space (includes natural areas, parks and developed recreation areas, but not land designated for Exclusive Forest Use).
2. Agriculture (pasture, cropped lands, orchards, range land).
3. Exclusive Forest Use lands.
4. Developed uses (residential, commercial or industrial—rural and urban).
5. Other (list).

✓16. What is the dominant existing land use within 500 feet of the wetland on the **downstream or down-slope edge** of the wetland? Use the same land-use categories as question 15.

17. What is the wetland's area in acres? (Measure the entire area of contiguous wetland, not just the portion within the assessment area. Use the dimensions of the wetland as outlined on the base map.)

a. Greater than 5 acres.
b. Between 0.5 acres and 5 acres.
c. Less than 0.5 acres.

✓ *Questions preceded by a check mark can be completed in the field.*

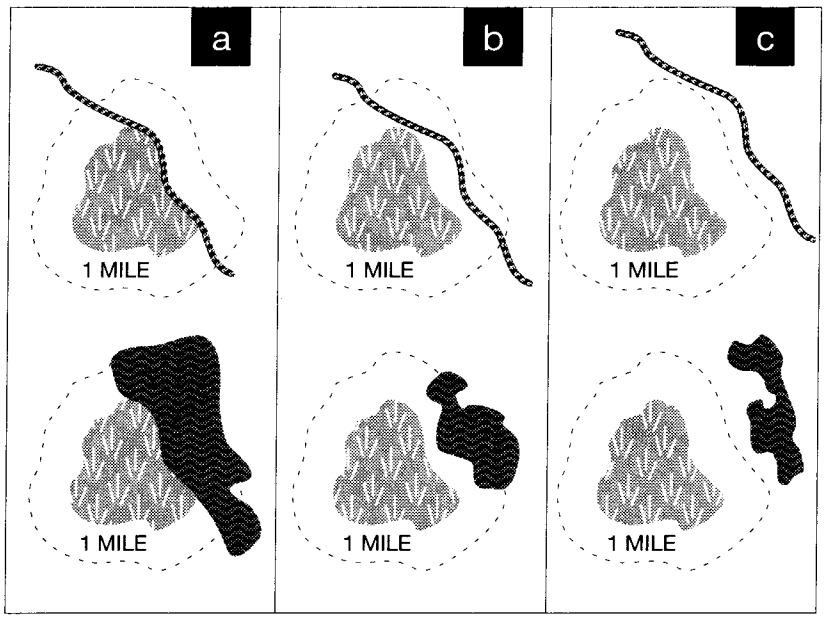


Figure 2. Connectivity to streams, lakes and ponds.
The lightly shaded area represents a wetland, the darkly shaded area represents a lake or pond and the dark line represents a stream. Part "a" shows the wetland connected to a stream, lake or pond, part "b" shows a stream, lake or pond within 1 mile but no surface connection, and part "c" shows no stream, lake or pond within 1 mile and no surface connection.

18. How is the wetland connected to another body of water, such as a stream, lake or pond? (See Figure 2.)
    a. The wetland is connected by surface water to another body of water. This may be by a culvert, irrigation ditch, intermittent stream or perennial stream.
    b. No surface-water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
    c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.
19. Is all or part of the wetland located within the 100-year floodplain (use floodplain maps to determine) or within an enclosed basin? An enclosed basin has no inlet or outlet.
    a. Yes.
    b. No.

	Wetland 1	*Wetland 2*	*Wetland 3*

	Wetland 1	Wetland 2	Wetland 3
20. What percentage of the area within 500 feet of the wetland's edge is **zoned** for each of the land uses listed below?			
Use the following ranges for your answers:			
a. Less than 20%			
b. Between 20% and 50%			
c. Greater than 50%.			
1. Open Space (includes natural areas, parks and developed recreation areas, but not lands zoned for Exclusive Forest Use).			
2. Agriculture (pasture, cropped lands, orchards, range land).			
3. Exclusive Forest Use lands.			
4. Developed uses (residential, commercial, industrial).			
5. Other (list).			

Wetland habitat

✓21. What percentage of the wetland's area is covered by the following Cowardin wetland classes? (Cowardin wetland classes refer to a classification of wetland type by vegetation cover. See Appendix D.) Only list those that compose 10% or more of the overall wetland.			
The percentages can be estimated in the field or from aerial photographs. Use the following categories for your answers:			
a. Between 70% and 100%.			
b. 50% or more, but less than 70%.			
c. 20% or more, but less than 50%.			
d. 10% or more, but less than 20%.			
1. Open water (deep water habitat, greater than or equal to 6.6 feet or 2 meters).			
2. Emergent (includes floating aquatics—herbaceous plants that can tolerate flooding and living in wet soils).			
3. Scrub-shrub (woody vegetation under 20 feet tall).			
4. Forested (woody vegetation 20 feet or taller).			
✓22. For urban areas, how many wetland plant species are present? (You need not list the species name.)			
a. More than 5 plant species.			
b. Between 2 and 5 plant species.			
c. 1 plant species (monotypic).			
✓23. What is the dominant wetland vegetation cover type?			
a. Woody vegetation (forested and scrub-shrub).			
b. Emergent vegetation and ponding, or open water only.			
c. Emergent vegetation only or wet meadow.			

	Wetland 1	Wetland 2	Wetland 3
✓24. Refer to the diagrams in Figure 3 and select the one that most closely resembles the interspersion of Cowardin wetland classes and, if present, upland inclusions. (An upland inclusion is an island or an upland area surrounded on three sides by wetland.).			

Wetlands composed of only one wetland class or with two wetland classes and a simple pattern have low interspersion. Wetland and upland complexes that have at least two wetland classes and a complex pattern have a moderate interspersion pattern. Wetlands with two or more wetland classes or upland inclusions with a complex pattern and lots of edge have a high interspersion pattern. If the wetland you are observing does not reflect any of the diagrams, use the above guidance to determine the complexity of the interspersion pattern and draw a sketch of the wetland.

a. High.

b. Moderate.

c. Low.

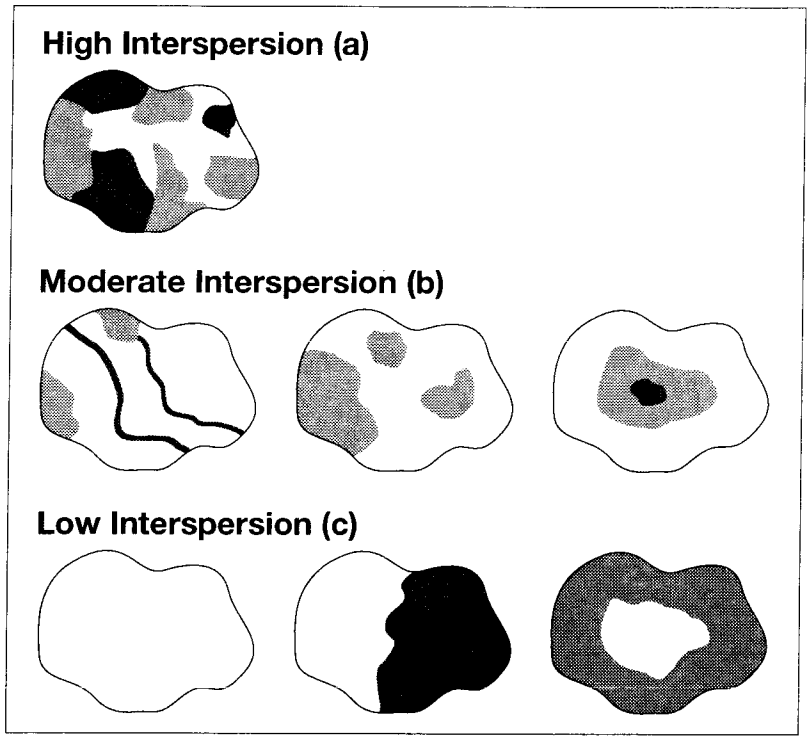


Figure 3. Interspersion of Cowardin classes and upland inclusions.

	Wetland 1	*Wetland 2*	*Wetland 3*
✓25. For **rural areas:** What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide? Brush, woodland, non-farmed agricultural land and range land are considered upland habitat for this question. Actively farmed lands are not considered wildlife habitat. (See Figure 4.) a. Greater than 40%. b. Between 10% and 40%. c. Less than 10%.			
✓26. For **urban areas:** What percentage of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide? A vegetative buffer consists of trees, bushes or vegetation that is not regularly mowed or farmed. (See Figure 5.) a. Greater than 40%. b. Between 10% and 40%. c. Less than 10%.			
27. How is the wetland connected to other wetlands? (Look at an aerial photo or map to determine this.) a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake. b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius. c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.			
28. Estimate the area of unvegetated, open water within the wetland. a. More than 3 acres. b. Greater than 1 acre, up to 3 acres. c. Between 0.5 acre and 1 acre. d. Less than 0.5 acre.			

	Wetland 1	Wetland 2	Wetland 3

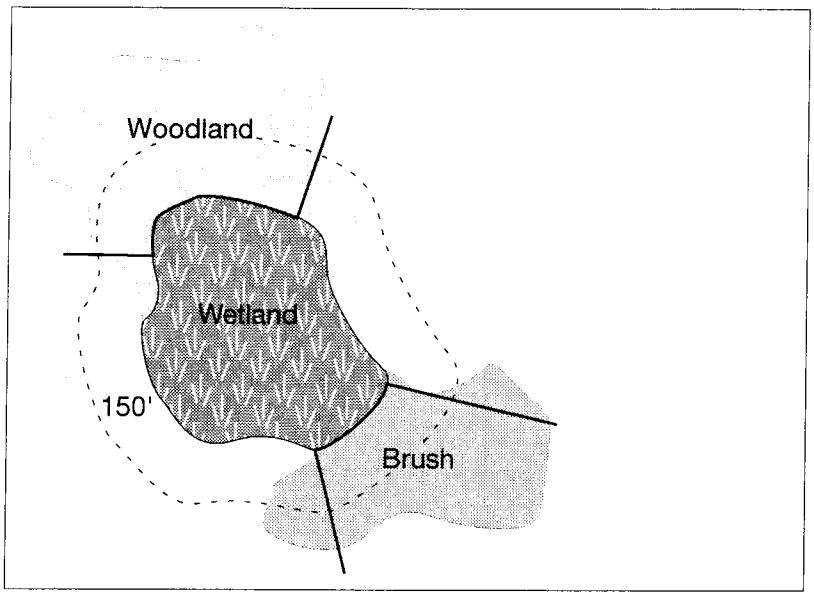


Figure 4. Percent of wetland edge bordered by upland habitat (for Question 25).
The dashed line delineates the area within 150 feet of the wetland; the "woodland" and "brush" areas are upland habitat; and the lines perpendicular to the wetland edge indicate where the upland habitat adjacent to the wetland habitat is at least 150 feet wide. The dark lines (portions of the wetland bordered by upland habitat at least 150 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

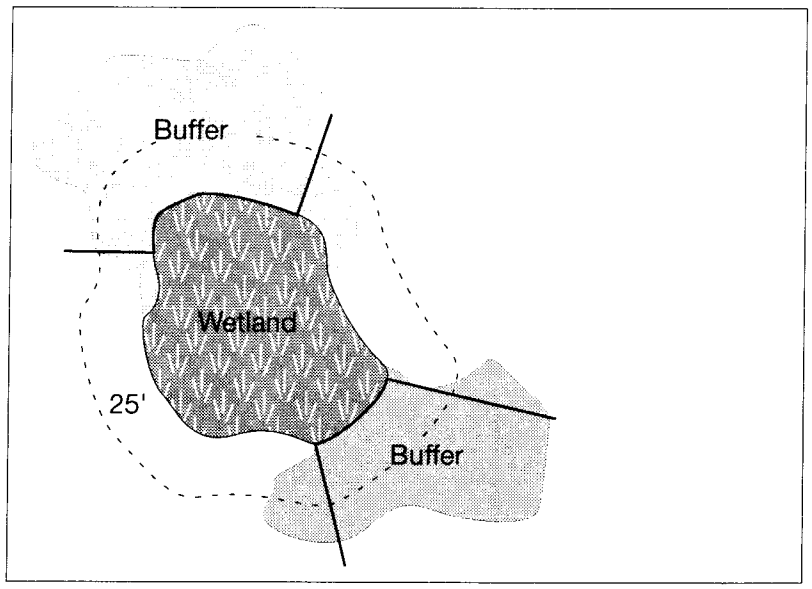


Figure 5. Percent of wetland edge bordered by vegetative buffer (for Question 26).
The dashed line delineates the area within 25 feet of the wetland; the vegetative buffer areas are labeled "buffer"; and the lines perpendicular to the wetland edge indicate where the vegetative buffer adjacent to the wetland habitat is at least 25 feet wide. The dark lines (portions of the wetland bordered by a vegetative buffer at least 25 feet wide) make up roughly one-third (between 10% and 40%) of the wetland perimeter.

	Wetland 1	Wetland 2	Wetland 3

Fisheries habitat

29. Are fish present in a stream, lake or pond connected to the wetland.
    a. Salmon, trout or sensitive species are present at some time during the year.
    b. Species not covered in "a" are present at some time during the year.
    c. No species are present at any time during the year.

Streams connected to the wetland

Complete this section only if the wetland being assessed has an unimpeded surface water connection to a stream.

✓30. What is the physical character of the stream channel? To observe stream channel modifications, look for built rock banks, cement sides, straightened areas or other human-created features.
    a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
    b. Only portions of the stream are modified.
    c. The stream is extensively modified or confined in a non-vegetated channel or pipe.

✓31. What percentage of the stream is shaded by streamside (riparian) vegetation?
    a. Greater than 75%.
    b. Between 50 and 75%.
    c. 25% or more, but less than 50%.
    d. Less than 25%.

✓32. What percentage of the stream contains instream structures such as large woody debris, floating or submerged vegetation, large rocks or boulders?
    a. Greater than 25%.
    b. Between 10% and 25%.
    c. Less than 10%.

Lakes or ponds (entire lake or pond and wetland complex)

Complete this section only if the wetland being assessed has a surface water connection to a lake or pond.

33. Does the lake or pond contain areas of deep and shallow water? ("Deep" is defined as more than 6.5 feet deep.)
    a. Yes.
    b. Cannot be determined.
    c. No.

	Wetland 1	Wetland 2	Wetland 3
✓34. What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation? a. 60% or more. b. 20% or more, but less than 60%. c. Less than 20%.			
✓35. What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders? a. Greater than 25% b. Between 10 and 25% c. Less than 10%			

Wetland hydrology

36. What is the wetland's **primary** source of water? (Determine in the field or in the office. This may be difficult to determine. If a surface water connection exists—stream, lake, ditch—use it as the primary source. If no surface water connection is present, talk to local natural resource people for hints.) a. Surface flow, including streams and ditches. b. Precipitation or sheet flow. c. Groundwater, including springs or seeps.			
✓37. Is there evidence of flooding or ponding during a portion of the growing season? Look for evidence of water fluctuation such as sediment stains on trees, drift lines, surface scour or sediment deposits. Also look at the location of the wetland. Is it in a distinct topographic depression or adjacent to a stream that is known to flood or fluctuate because of storm pulses? a. Yes (describe). b. Unable to determine or not applicable. c. No.			
✓38. Is water flow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)? a. Yes, the outlet is restricted or the wetland has no outlet. b. Minor restrictions slow down the water (e.g., undersized culvert). c. No, the outlet has unrestricted flow.			

	Wetland 1	Wetland 2	Wetland 3
✓39. If the primary source of water is surface flow, is the water flow into the wetland restricted?			
a. Flow is not restricted, or if blocked, the obstruction can be removed easily.			
b. Permanent blockage to the flow exists but may be breached or a new flow channel created (engineering or earth moving solution).			
c. Flow is restricted and cannot be restored.			
40. Has the stream flow or stream bank been modified by human activities less than 1 mile above the wetland? Modifications include dams, channelizations and levees, and confinement of the stream in a pipe.			
a. Yes.			
b. No.			

Public access to wetland site *(select an appropriate area to observe the wetland to answer these questions.)*

41. Is the wetland site open to the public for direct access or observation?			
a. Yes, the wetland is open to the public.			
b. Yes, but wetland access is allowed only by permission of the landowner or managing entity.			
c. No, access is not allowed.			
✓42. Are there visible hazards to the public at the wetland site? (Examples: busy road adjacent to the site, and no buffer or sidewalk exists; steep embankment; and contaminated water.)			
a. No.			
b. One or two visible safety hazards exist (describe).			
c. More than two visible safety hazards exist (describe).			
✓43. Are there other natural landscape features, such as a stream, lake, pond, forest or agricultural land contiguous or adjacent to the wetland?			
a. Yes. (List type and extent.)			
b. No.			

	Wetland 1	Wetland 2	Wetland 3
✓44. Is there existing physical public access to features listed in Question 43? If not, can such access be created easily, or can other habitats be observed from the site? For a stream, pond or lake, access may require dry ground to the water's edge. Stream access could also be at a road crossing, but consider the safety at such locations a. Public access to other habitats exists or can be created easily. b. Public access doesn't exist and can't be created easily, but observation of other features can be made from the site. c. Public access doesn't exist and can't be created easily. In addition, observation of other features can't be made from the site.			
✓45. Does it appear that access to a viewing spot or wetland edge is available for individuals with limited mobility? (To see whether the site meets ADA requirements, a more thorough examination should be done.) a. Yes. b. No. (List physical barriers.)			
✓46. Is there a public access point within 250 feet of the wetland's edge? Access points include parking lots, transit stops, bike lanes, trails and water courses. Maintained means that the area is designated as a car or transit area by the managing entity. Unmaintained would be a road pull-off or other area that people use but is not designated for such use. Describe the type of access. a. Yes, a maintained access point exists (describe). b. Yes, an unmaintained access point exists (describe). c. No access point exists, or the access point is hazardous.			

Recreation

✓47. Is the wetland accessible by boat? a. Boat launching areas or access points exist on site or within 1/2 mile on a connected lake, river, bay or other body of water. b. Potential to develop boat launching areas or access points exists, or such features are more than 1/2 mile but less than 1 mile from the wetland. c. No boat launching areas or access points exist within 1 mile of the wetland, and potential to develop launching areas or access points is limited.			

	Wetland 1	Wetland 2	Wetland 3
✓48. Are there trails, viewing areas or other structures that guide user movement to a particular area or areas in or around the wetland?			
a. Yes, developed or maintained trails or viewing areas exist.			
b. Yes, undeveloped trails or viewing areas exist that do not disrupt wildlife or plant habitat.			
c. No trails or viewing areas exist, or those that do disrupt wildlife or plant habitat.			
49. Is fishing allowed at the wetland or connected water body? (Contact local Oregon Department of Fish and Wildlife office.) Answer "not applicable" if question 18 was answered "b" or "c," unless question 21 indicates that 10% or more of the wetland's area is covered by open water.			
a. Yes (either all or part of the year).			
b. No.			
c. Not applicable.			
50. Is hunting allowed at the wetland? (If the wetland is within the city limits, hunting is not allowed. Otherwise, contact the local Oregon Department of Fish and Wildlife office for this information.)			
a. Yes (either all or part of the year).			
b. No.			

Aesthetics

✓51. For **rural areas**, what is the extent of visual contrast with the surrounding landscape? (See Figure 6.)			
a. Significant contrast with surrounding landscape.			
b. Limited contrast with surrounding landscape.			
c. Little or no contrast with surrounding landscape.			
✓52. For **urban areas,** what is the visual character of the surrounding area? (See Figure 7.)			
a. Open space or naturally landscaped areas.			
b. Areas landscaped or manipulated by people.			
c. Developed with no landscaping.			
✓53. Are there visual detractors at the wetland site such as abandoned cars, litter, shopping carts or other objects that distract the viewer from the wetland?			
a. Yes.			
b. No.			
✓54. If the wetland contains visual detractors, as indicated in question 53, can they be removed easily?			
a. Yes.			
b. No.			

Locate the primary viewing area(s) for the following four questions (be sure to indicate the location on the overlay).

✓55. What odors are present at the primary viewing location(s)?

a. Natural, pleasant odors only.

b. Unpleasant odors such as automobile exhaust or stench from a sewage treatment plant are present at certain times.

c. Unpleasant odors are distinct and continuously present.

	Wetland 1	*Wetland 2*	*Wetland 3*

Figure 6. Visual contrast.
The top part of the figure shows a wetland with significant visual contrast with the surrounding landscape. The bottom part shows a wetland with little or no visual contrast with the surrounding landscape.

	Wetland 1	Wetland 2	Wetland 3
✓56. What noises are audible at the primary viewing location(s)?			
a. Bird and wildlife noises and other naturally occurring sounds.			
b. Some traffic and other similar background sounds are audible in addition to naturally occurring sounds.			
c. Continuous traffic or other intrusive noise is audible in addition to naturally occurring sounds.			
d. Continuous traffic or other intrusive noise is audible, but no naturally occurring sounds are.			
✓57. How much of the wetland is visible from the viewing area(s)? Describe the view.			
a. Greater than 50%.			
b. Between 25% and 50%.			
c. Less than 25%.			
✓58. How many Cowardin classes are visible from the primary viewing area(s)? (See question 21 for list of Cowardin classes to use.)			
a. More than two.			
b. Two			
c. One			

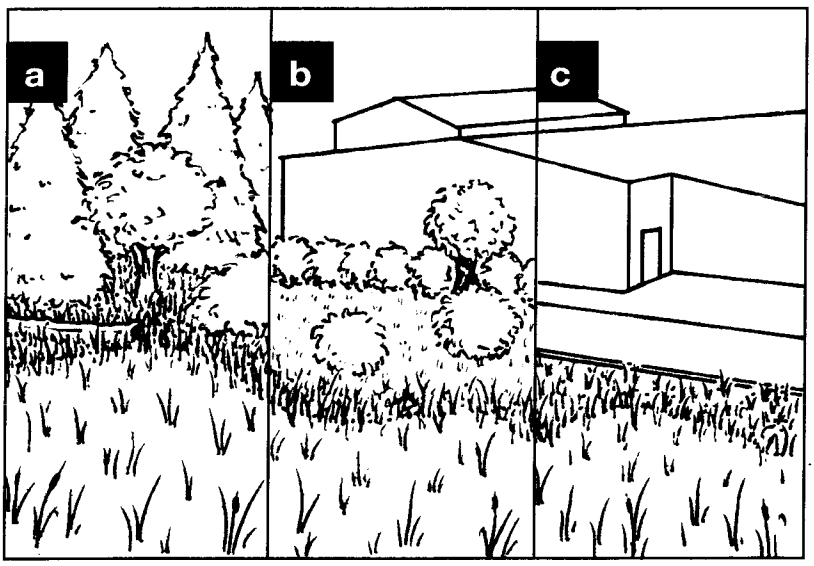


Figure 7. Visual character of urban wetlands.
Beginning with the left part, this figure shows an urban wetland with naturally landscaped areas, areas landscaped by people and with unlandscaped developed areas.

Function & condition assessment questions

VI.

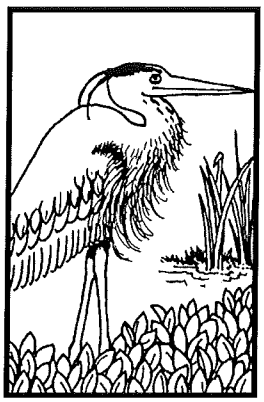
This chapter includes a set of **assessment questions** for each of the nine functions and conditions evaluated using the Oregon Method.

Listed after each assessment question you will find **directions** explaining which questions from the Wetland Characterization you should refer to when determining your answer. Some of the questions are followed by examples.

Then, following the directions for each question, is a **rationale** paragraph that explains the importance of the information you are asked to gather.

Duplicates of all question sets—without the rationales—appear in Appendix C. *Once you are familiar with the directions and rationale for each question, detach the appendix and photocopy it for use in the field.* This will reduce the possibility of losing portions of the main document.

At the end of the chapter (and in Appendix C) is an **answer sheet**, where you can enter your responses to all assessment questions, as well as a **function and condition summary sheet,** where you can enter the results of the assessment criteria for each function and condition and where you can write an overall description of a wetland's functions and conditions. The **watershed summary sheet** is also included at the end of this chapter.



Wildlife habitat

Wetlands provide habitat for many wildlife species. A single wetland often cannot satisfy all require ments for wildlife use, so its proximity to other bodies of water or upland areas is important. Buffers and corridors are also essential for this reason, and they reduce human disturbance as well. Many species also have special habitat requirements: Good water quality is necessary for amphibians and mammals; structural diversity is important for birds; and a combination of open water and grazing areas is important for waterfowl.

For this assessment, **urban wetlands are those within urban growth boundaries or urban or rural service areas.** Because of the impacts of human activities, urban wetlands may not satisfy as many habitat requirements as wetlands in undeveloped areas. This should not be interpreted to mean that urban wetlands have limited value for all wildlife. The importance of an urban wetland may be increased because of its location and surroundings.

Notes

Assessment questions

Question 1

How many Cowardin wetland classes are present?

Directions

See question 21 in the Wetland Characterization. Count only those Cowardin classes for which you answered "a," "b" or "c." For urban areas, also consider the mix of species (Question 22 in the Wetland Characterization.)

Rural areas:

a. Three or four.
b. Two.
c. One.

Urban areas:

a. Two or more.
b. One class with more than five plant species.
c. One class with five or fewer plant species.

Rationale

In Northwest wetlands, vegetation is the most important component of wildlife habitat. It is widely recognized that plant community diversity increases animal community diversity. The existence of two Cowardin classes adjacent to each other may also improve wildlife habitat value because some wetland wildlife species use the edge between plant communities. ("Edge" describes the border between vegetation types or between a vegetation type and open water.)

Structural diversity is also important. If several layers of vegetation are present, more diverse habitat types are provided. (Different birds nest in different layers.) In addition, the number of layers affects the amount of natural debris, which is necessary for amphibians and other wildlife.

Question 2

What is the dominant wetland vegetation cover type?

a. Woody vegetation.
b. Emergent vegetation and ponding, or open water only.
c. Emergent vegetation or wet meadow.

Directions

See question 23 in the Wetland Characterization.

Rationale

Wooded and shrub wetlands provide habitat for the largest overall species assemblages. Emergent wetlands associated with open water are also an essential habitat for a large number of wetland species, particularly waterfowl, amphibians and wading birds. Emergent wetlands without open water provide habitat for wetland species to a lesser degree.

Question 3

What is the degree of Cowardin class interspersion for the wetland being observed?

a. High.
b. Moderate.
c. Low.

Directions

See question 24 in the Wetland Characterization.

Rationale

Interspersion occurs when two or more wetland types or upland inclusions create a mosaic or pattern. In a wetland composed of approximately concentric bands of vegetation, such as cattails ringed by shrubs, interspersion is low. At the opposite extreme, small patches of shrubs scattered throughout an emergent marsh represent a high degree of interspersion.

When two or more vegetation types are highly interspersed, a great deal of edge is created. Edge is important because many wildlife species are edge dwellers. Generally, the greater the edge, the greater the diversity of wildlife.

Notes

Question 4

If the wetland contains unvegetated open water, how many acres of unvegetated open water are present?

Directions

See question 28 in the Wetland Characterization.

Rural areas:

a. More than 3 acres .
b. Between 0.5 and 3 acres.
c. Less than 0.5 acres.

Urban areas:

a. More than 1 acre.
b. Between 0.5 and 1 acre.
c. Less than 0.5 acres.

Rationale

Open water is essential to a number of wetland wildlife species, including waterfowl, wading birds, amphibians and some reptiles.

Question 5

How is the wetland connected to another body of water, such as a stream, lake or pond?

Directions

See question 18 in the Wetland Characterization.

a. The wetland is connected by surface water to another body of water.
b. No surface water connection exists to another body of water, but other bodies of water lie within 1 mile of the wetland.
c. No surface-water connection exists to another body of water, and no other bodies of water lie within 1 mile of the wetland.

Rationale

Wetland wildlife species will often use surface water to travel between a wetland and deep water. Also, water must be available during critical phases for the wildlife that use it. Water available during the nesting season is more valuable to wildlife than water available only during the winter.

Notes

Question 6 *(for Western OR only)*

How is the wetland connected to other wetlands?

Directions

See question 27 in the Wetland Characterization.

a. Connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, culvert, canal or lake.
b. Not connected by surface waters, but other unconnected wetlands lie within a 3-mile radius.
c. Not connected to other wetlands by surface waters, and no other unconnected wetlands lie within a 3-mile radius.

Rationale

Proximity to other wetlands increases a wetland's utility as habitat. Nearby wetlands sometimes contain features absent from the assessment wetland. For example, birds such as the great blue heron may roost near one wetland but travel to another to fish if the wetland where they roost doesn't have an ample supply of fish.

This criterion applies only in western Oregon. Because of the dry climate in eastern Oregon, isolated wetlands provide important habitat to both local and migratory species.

Question 7

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

Directions

See questions 7 and 8 in the Wetland Characterization. If both "a" and "b" apply, choose "a."

a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.
b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.
c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.

Rationale

Poor water quality can harm many terrestrial and aquatic species. The character of a wetland ecosystem can change when exposed to nutrients and other chemicals beyond tolerable limits. Excess nutrients, for example, can cause oxygen deficiencies, which in turn can cause a change in the species composition of both plant and animal communities. Studies in Washington and elsewhere have indicated that amphibians are especially sensitive to water quality.

Notes

Question 8

What is the dominant existing land use within 500 feet of the wetland's edge?

a. Exclusive Forest Use or Open Space.
b. Agriculture.
c. Developed uses.

Directions

See question 15 in the Wetland Characterization. If the responses you gave to question 15 in the Characterization indicate that two or more land-use categories are equally dominant, pick the one that will yield the lowest letter response for this question. (Example: In question 15 of the Wetland Characterization, you responded "b. Between 20% and 50%" to both *Exclusive Forest Use lands* and *developed uses,* and the remainder of your responses to question 15 were "a. Less than 20%." For this Wildlife Habitat question, you would respond "a. Exclusive Forest Use or Open Space.")

Rationale

Wildlife habitat generally deteriorates as land use changes from forested land to agricultural land to urban land. Certain game species, such as deer and some waterfowl, may benefit from land clearing. However, the majority of wildlife species are affected adversely when the land is developed because of fencing, lighting and loss of habitat.

Notes

Question 9a

For **rural areas:** What percentage of the wetland's edge is bordered by upland wildlife habitat that is at least 150 feet wide?

a. Greater than 40%.
b. Between 10% and 40%.
c. Less than 10%.

Question 9b

For **urban areas:** What percent of the wetland's edge is bordered by a vegetative buffer at least 25 feet wide?

a. Greater than 40%.
b. Between 10 and 40%.
c. Less than 10%.

Directions

For rural areas, see question 25 in the Wetland Characterization. For urban areas, see question 26 in the Wetland Characterization.

Rationale

A buffer zone, an uncut or undisturbed area of vegetation providing wildlife cover, increases a wetland's wildlife habitat potential. It provides habitat for both upland animals and wetland dependent species that require upland habitat for parts of their life cycle. A buffer zone also decreases the impacts of disturbance on the wetland. This is particularly important for nesting birds, which may be disturbed by people and household pets.

Well-vegetated buffer areas and corridors are particularly significant in urban areas because of their beneficial effect on water quality as well as their value for wildlife.

Wildlife habitat: assessment criteria

The wetland provides diverse wildlife habitat if:	At least four questions are answered "a," and no more than one is answered "c."
The wetland provides habitat for some wildlife species if:	Answers do not satisfy the above- or below-listed criteria.
The wetland's wildlife habitat function is lost or not present if:	All questions are answered "c."

Notes

Fish habitat

Notes

This index assesses the contribution of wetlands connected to streams, rivers, lakes or ponds to fish habitat. **or this index, "connected to" implies a surface-water connection.** The assessment should be done on the reach of the stream or on a section of lake that actually borders the wetland or is contained within the wetland.

A stream is defined as a waterbody with a distinct channel and flow. Examples include sloughs, perennial streams and intermittent streams. If dikes or berms have been built on the stream banks between the stream and wetland that do not allow continual exchange of surface water, do not complete this index. If both a stream and lake are present, choose the one with the longest wetland surface connection.

Wetlands that contribute to habitat for fish include areas with dense, overhanging vegetation. This vegetation provides shade, cover and food sources to related waterways and lakes. Wetlands also provide spawning, rearing and resting opportunities for fish. However, a wetland need not actually contain fish to contribute to fish habitat because wetlands may perform important functions for fish-bearing waters downstream.

The assessment of fish habitat is divided into two parts. Part A evaluates the wetland habitat connected to rivers and streams. If there is no stream or river associated with the wetland, then leave Part A out of the assessment. Part B evaluates the wetland habitat connected to ponds (water greater than 6 feet deep) and lakes. If there is no lake or pond connected to the wetland, then leave Part B out of the assessment. If no stream, river, pond or lake is connected to the wetland, then leave this index out of the assessment altogether.

Assessment questions: Part A—streams

Question 1

What percentage of the stream is shaded by stream-side (riparian) vegetation?

Directions

See question 31 in the Wetland Characterization.

Western Oregon:

a. More than 75%.
b. Between 50% and 75%.
c. Less than 50%.

Eastern Oregon:

a. 50% or more.
b. 25% or more, but less than 50%.
c. Less than 25%.

Rationale

Many Oregon streams are unsuitable for anadromous and resident fish because riparian vegetation has been cleared. High water temperatures that result from removal of stream-side vegetation can make a stream unsuitable for some fish species. Salmonids and some resident fish are particularly susceptible to elevated water temperatures. The amount and type of stream-bank cover also affects the amount of large woody debris in the stream or river system. In addition, stream-bank vegetation provides habitat for insects, an important food source for salmonids.

Question 2

What is the physical character of the stream channel?

Directions

See question 30 in the Wetland Characterization.

a. The stream is in a natural channel, or modified portions of the stream are returning to a natural channel.
b. Only portions of the stream channel are modified.
c. The stream is extensively modified or confined in a non-vegetated channel or pipe.

Rationale

Although the species or age composition of low- and high-gradient streams is different, both can provide habitat for fish. Artificially channelized or extensively modified streams, however, usually do not provide fish habitat as well as natural stream channels.

Notes

Question 3

What percentage of the entire stream contains instream structures such as large woody debris, floating submerged vegetation, large rocks or boulders?

a. More than 25%.
b. Between 10% and 25%.
c. Less than 10%.

Directions

See question 32 in the Wetland Characterization.

Rationale

Cover is essential for good fish habitat. It provides refuge from predators and serves as substrate for insect larva, which are a good food source for some fish species. The presence of large pieces of woody material in pools is essential for providing adequate winter habitat for salmonid species. In addition, large pieces of woody material contribute to bank stability, dissipate energy, generate pool formation and encourage meandering. The breakdown of this material is also important in the nutrient cycle of the stream or river.

Question 4

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.
b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.
c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.

Directions

See questions 7 and 8 in the Wetland Characterization. If both "a" and "b" apply, choose "a."

Rationale

Poor water quality can harm many aquatic species. The whole character of a wetland ecosystem can change when it is exposed to nutrients and other chemicals beyond tolerable limits. Excess nutrients, for example, can cause oxygen deficiencies, which in turn can cause a species composition change in both plant and animal communities.

Notes

Question 5

What is the dominant existing land use within 500 feet of the wetland's edge?

a. Exclusive Forest Use or Open Space.
b. Agriculture.
c. Developed uses.

Directions

Refer to the directions for question 8 of the wildlife habitat assessment questions.

Rationale

Fish habitat generally deteriorates as land use becomes more intensive, e.g., changes from forested land to agricultural land (including rangeland) to urban land. The change in intensity often changes the structure of the habitat and increases runoff, pollutant loading and sedimentation.

Question 6

Are fish present in a stream, lake or pond associated with the wetland?

a. Salmon, trout or sensitive species are present at some time during the year.
b. Species not covered in "a" are present at some time during the year.
c. No species are present at any time during the year.

Directions

See question 29 in the Wetland Characterization.

Rationale

The potential for a wetland to benefit fish is directly related to the presence of fish in the stream or river reach within or adjacent to the wetland.

Part B—lakes and ponds

Question 1

Does the lake or pond contain areas of both deep and shallow water?

a. Yes.
b. Cannot be determined.
c. No.

Directions

See question 33 in the Wetland Characterization.

Rationale

The depth of the pond or lake is important for spawning and may be important for rearing. A mixture of shallow, medium and deeper water is optimum to provide different habitat types.

Notes

Question 2

What percentage of the wetland complex contains cover objects such as submerged logs, floating or submerged vegetation, large rocks or boulders?

a. More than 25%.
b. Between 10% and 25%.
c. Less than 10%.

Directions

See question 35 in the Wetland Characterization.

Rationale

Cover is essential for good fish habitat. It provides refuge from predators and serves as substrate for insect larva, which are a food source for some fish species. The presence of large pieces of woody material in wetlands is essential for providing adequate winter habitat for salmonid species. In addition, large pieces of woody material contribute to bank stability and dissipate energy. The breakdown of this material is also important in the nutrient cycle of the pond or lake.

Question 3

What percentage of the shoreline is shaded at the water's edge by forested or scrub-shrub vegetation?

a. 60% or more.
b. 20% or more, but less than 60%.
c. Less than 20%.

Directions

See question 34 in the Wetland Characterization.

Rationale

Shoreline cover provides shading, which moderates water temperature in lakes and ponds. High water temperatures that result from removal of lake-side vegetation can make a lake unsuitable for some fish species. Shoreline vegetation also provides food, large pieces of woody debris and cover from predators. Woodland and scrubland vegetation provides more shading than herbaceous vegetation.

Notes

Question 4

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

Directions

See questions 7 and 8 in the Wetland Characterization. If both "a" and "b" apply, choose "a."

a. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.
b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.
c. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.

Rationale

See Part A question 4.

Question 5

What is the dominant existing land use within 500 feet of the wetland's edge?

Directions

Refer to the directions for question 8 of the wildlife habitat assessment questions.

a. Exclusive Forest Use or Open Space.
b. Agriculture.
c. Developed uses.

Rationale

See Part A question 5.

Question 6

Are fish in a stream, lake or pond associated with the wetland?

Directions

See question 29 in the Wetland Characterization.

a. Salmon, trout or sensitive species are present at some time during the year.
b. Species not covered in "a" are present at some time during the year.
c. No species are present at any time during the year.

Rationale

The potential for a wetland to benefit fish is directly related to the presence of fish in the pond or lake.

Notes

Fish habitat: assessment criteria

The wetland's fish habitat function is intact if:	Any three questions are answered "a," and no more than one is answered "c."
The wetland's fish habitat function is impacted or degraded if:	Answers do not satisfy the above- or below-listed criteria.
The wetland's fish habitat function is lost or not present if:	All questions are answered "c."

Notes

Water quality (pollutant removal)

Notes

Sediment trapping

During periods of heavy rainfall, water runoff may cause erosion and increase solids suspended in receiving surface waters. The excess sediment entering water systems can damage aquatic ecosystems. For example, sediment accumulation in stream bottoms can smother spawning areas and kill aquatic insect larvae. It can also reduce the storage capacity of downstream water supply reservoirs.

Wetlands perform an important function by trapping sediment from waters that pass through them. As water flows through wetlands, it is slowed by vegetation, and sediment settles to the bottom before the water moves farther downstream. As much as 90% of the solids suspended in the water may be removed as the water moves through wetlands, resulting in cleaner water entering streams, rivers, lakes and estuaries.

Nutrient attenuation

Nitrogen and phosphorus are the two nutrients most often associated with water pollution. They are also main ingredients of fertilizers used on agricultural fields and lawns, and both are found in high concentrations in discharges from sewage treatment plants and livestock operations. Excessive amounts of nitrogen and phosphorus in lakes and slow-moving streams can cause algal blooms and subsequent oxygen deficiencies, which may kill fish and reduce water quality. The processes that occur as a result of excess nutrients are lumped together under the term "eutrophication." Within limits, wetlands can reduce nutrient levels so that the effects of eutrophication on downstream areas are prevented or reduced. This index considers only point and non-point pollutant sources that are due to land uses in the watershed.

Assessment questions

Question 1

What is the wetland's primary source of water?

a. Surface flow, including streams and ditches.
b. Precipitation or sheet flow.
c. Groundwater, including seeps and springs.

Directions

See question 36 in the Wetland Characterization.

Rationale

Wetlands bordering a perennial or intermittent stream or lake are areas into which floodwaters spread during periods of high runoff, enabling the wetlands to remove pollutants.

Question 2

Is there evidence of flooding or ponding during a portion of the growing season?

a. Yes.
b. Unable to determine or not applicable.
c. No.

Directions

See question 37 in the Wetland Characterization.

Rationale

Water level fluctuation in the wetland indicates the ability to retain water. Impounded or standing water acts as a sediment trap because it greatly slows the flow of the incoming water, allowing suspended solids to settle out. Additionally, the slower velocity increases the contact time of the water with vegetation, resulting in uptake of nutrients by the vegetation. These actions function to reduce pollutant loads.

Question 3

What is the degree of wetland vegetation cover?

a. High (greater than 60%).
b. Moderate (approximately 60%).
c. Low (less than 60%).

Directions

See question 21 in the Wetland Characterization. Add the lower end of the ranges for forest, scrub-shrub and emergent vegetation to get the result. If the result is 60% or more, answer "high." If the result is 60%, answer "moderate." Answer "low" for other results.

Rationale

The more dense the vegetation, the greater the wetland's ability to take up nutrients. A dense stand of persistent emergent plants (such as cattail and rush) along with floating and submerged aquatics would tend to provide maximum nutrient uptake during the growing season. Wooded and scrub-shrub wetlands remove nutrients mainly through settling of suspended solids in runoff and flood waters.

Notes

Question 4

What is the wetland's area in acres?

Directions

See questions 17 and 27 in the Wetland Characterization.

a. More than 5 acres.
b. Between 0.5 acres and 5 acres; or wetland area is less than 0.5 acres, and the wetland is connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake.
c. Less than 0.5 acres, and the wetland is not connected to other wetlands within a 3-mile radius by a perennial or intermittent stream, irrigation or drainage ditch, canal or lake.

Rationale

The larger the wetland, the greater its capacity and ability to filter pollutants. Small wetlands connected by surface water act as a series of filters and thus function similarly to a larger wetland.

Question 5

What is the dominant, existing land use within 500 feet of the wetland's edge?

Directions

Refer to the directions for question 8 of the wildlife habitat assessment questions.

a. Developed uses.
b. Agriculture.
c. Exclusive Forest Use or Open Space.

Rationale

Urbanized areas have more impervious surface areas and concentrate pollution sources. Wetlands in urban areas are important for filtering the runoff water before it enters a stream.

Notes

Question 6

What is the water quality condition of stream reaches in the watershed upstream of the wetland or adjacent to the wetland?

Directions

See questions 7 and 8 in the Wetland Characterization. If both "a" and "b" apply, choose "a."

a. One or more upstream or adjacent reaches are listed as *water quality limited* or in *severe* water quality condition for nonpoint source pollutants.

b. One or more upstream or adjacent reaches are listed in *moderate* water quality condition for nonpoint source pollutants.

c. No upstream or adjacent reaches are listed as *water quality limited,* and all upstream or adjacent reaches are listed as *no problem* (or no data available) for nonpoint source pollutants.

Rationale

A watershed with upstream pollutant loading sources needs wetlands to reduce pollutant levels in water before it is delivered downstream.

Water quality: assessment criteria

A wetland's water-quality function is intact if:	Question 1 is answered "a" or "b," questions 2 and 3 are answered "a," and any other question is answered "a" or "b."
A wetland's water-quality function is impacted or degraded if:	Answers do not satisfy the above- or below-listed criteria.
A wetland's water-quality function is lost or not present if:	Four out of six questions are answered "c."

Notes

Hydrologic control
(flood control & water supply)

Notes

Wetlands function as natural water-storage areas during periods of high runoff and stream flooding. At times they act as flood regulators by holding floodwater then slowly releasing it downstream. This temporary storage reduces the amount of water downstream during floods, thereby reducing peak flows. Through this flood storage mechanism, wetlands associated with tributaries of streams or rivers can prevent water from all tributaries reaching the stream or river at the same time (this is called desynchronization). Wetlands can also act as floodwater "brakes." For example, water flowing through riverine wetlands during floods is slowed by trees, shrubs, reeds, rushes and other wetland vegetation. Wetlands acting as brakes can reduce flood peaks and thereby reduce flood damage, bank and bed erosion, and other adverse effects caused by fast moving water.

Wetlands also have long-term water holding abilities. Wetlands may store water for longer periods, sometimes for months. The slow draining of these wetlands to surface water or ground water as the water level in the wetland recedes may contribute to maintenance of baseflows in streams hydrologically connected to the wetland. The ability of this long-term water storage to maintain stream flows is called "flow conservation."

Assessment questions

Question 1

Is all or part of the wetland located within the 100-year floodplain or within an enclosed basin?

a. Yes.
b. No.

Directions

See question 19 in the Wetland Characterization.

Rationale

Wetlands located within a floodplain or enclosed basin have a greater opportunity to receive and store water from surface flows and to release it slowly downstream or into the groundwater.

Question 2

Is there evidence of flooding or ponding during a portion of the growing season?

a. Yes.
b. Unable to determine or not applicable.
c. No.

Directions

See question 37 in the Wetland Characterization.

Rationale

Water marks are valid indicators of seasonal and episodic stage fluctuations in wetlands and, as such, are strong indicators of storage function.

Question 3

What is the wetland's area in acres?

a. More than 5 acres.
b. Between .5 acres and 5 acres.
c. Less than .5 acres.

Directions

See question 17 in the Wetland Characterization.

Rationale

Generally, the larger the wetland, the greater its ability to store and attenuate flood flows.

Question 4

Is waterflow out of the wetland restricted (e.g., beaver dam, concrete structure, undersized culvert)?

a. Yes, the outlet is restricted or the wetland has no outlet.
b. Minor restrictions slow down the water (i.e., undersized culvert.)
c. No, the outlet has unrestricted flow.

Directions

See question 38 in the Wetland Characterization.

Rationale

Wetlands with no outlets or with restricted or controlled outlets generally will store greater amounts of water than wetlands with unrestricted flow outlets. Also, the wetland can store water for slower release into the water system.

Notes

Question 5

What is the dominant wetland vegetation cover type?

a. Woody vegetation.
b. Emergent vegetation and ponding, or open water only.
c. Emergent vegetation or wet meadow.

Directions

See question 23 in the Wetland Characterization.

Rationale

Densely vegetated wetlands with vegetation greater than 6 feet tall are better able to control flood flows than wetlands dominated by open water or low growing vegetation, which generally offers little resistance.

Question 6

What is the dominant existing land use, within 500 feet of the wetland on the downstream or down-slope edge of the wetland?

a. Developed uses.
b. Agriculture.
c. Exclusive Forest Use and Open Space.

Directions

See question 16 in the Wetland Characterization.

Rationale

If the wetland is upstream from developed areas, its ability to control floods becomes more important.

Question 7

What is the dominant land use in the watershed upstream from the assessment area?

a. Urban or urbanizing.
b. Agriculture.
c. Forested or natural area.

Directions

See question 6 in the Wetland Characterization.

Rationale

Runoff volume is directly related to the level of development in the watershed: The more development, the more runoff. The opportunity for the wetland to provide flood control and flow conservation to a community is greater where runoff is greater.

Notes

Hydrologic control: assessment criteria	
A wetland's hydrologic control function is intact if:	Four or more questions are answered "a."
A wetland's hydrologic control function is is impacted or degraded if:	Answers do not satisify the above- or below-listed criteria.
A wetland's hydrologic control function is lost or not present if:	Four or more questions are answered "c."

Notes

Lowell LWI - Wetland Characterization Results

Wetland Characterization Questions - Refer to attached OFWAM guide	Wetland Code																
	1	2a-d	3	4	5	6	7	8	WD1993-0106-1-2	1994-0067	1996-0016-1-2 & 2008-0030	1997-0473-1	1997-0473-2	1999-0201	2008-0618-1	2008-0618-2-4	2009-0442
15.1	B	B	B	B	B	A	C	B	B	A	B	B	B	A	A	A	C
15.2	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
15.3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
15.4	B	C	C	C	C	C	A	B	C	C	C	C	C	C	C	C	A
16	4	4	4	4	4	4	1	1	4	4	4	4	4	4	4	4	1
17	B	A	C	C	C	C	A	C	B	C	B	C	C	B	C	C	A
18	A	A	B	A	A	B	A	A	A	B	A	B	B	A	A	B	A
19	B	B	B	B	B	A	A	A	B	B	B	B	B	B	B	B	A
20.1	A	A	A	A	A	A	B	B	A	A	A	A	A	A	A	A	B
20.2	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
20.3	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
20.4	C	C	C	C	C	C	A	A	C	C	C	C	C	C	C	C	A
21.1	N/A	N/A	N/A	N/A	N/A	N/A	D	D	D	N/A	N/A	N/A	D	D	D	D	N/A
21.2	A	C	A	A	A	A	C	C	C	A	C	A	A	A	D	A	B
21.3	D	B	N/A	N/A	N/A	N/A	D	D	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	D
21.4	N/A	N/A	N/A	N/A	D	N/A	B	B	B	D	C	N/A	N/A	D	B	D	C
22	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
23	C	A	C	C	C	C	A	A	A	C	A	C	B	C	A	C	B
24	B	B	C	C	C	C	A	B	B	C	C	C	C	C	C	C	B
25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
26	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A	A	A
27	B	A	B	A	A	B	A	A	A	B	A	B	B	B	A	B	A
28	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D
29	C	C	N/A	C	N/A	N/A	A	A	C	N/A	C	C	N/A	C	C	N/A	A
30	A	A	N/A	A	C	N/A	N/A	N/A	A	N/A	A	N/A	N/A	A	B	N/A	N/A
31	C	A	N/A	A	D	N/A	N/A	N/A	B	N/A	C	N/A	N/A	B	C	N/A	N/A
32	C	C	N/A	C	C	N/A	N/A	N/A	C	N/A	C	N/A	N/A	C	C	N/A	N/A
33	N/A	N/A	N/A	N/A	N/A	N/A	A	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A
34	N/A	N/A	N/A	N/A	N/A	N/A	C	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C
35	N/A	N/A	N/A	N/A	N/A	N/A	C	C	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	C
36	B	B	B	B	B	B	A	A	A	B	A	B	B	B	A	B	A
37	A	A	C	A	A	B	A	A	A	C	A	B	A	C	A	A	A
38	C	B	C	C	B	A	C	C	B	B	B	A	C	C	B	B	B

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	1	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	A	Q1:	C	Q1:		Q1:	B	Q1:	B
Q2:	C	Q2:	A	Q2:		Q2:	A	Q2:	A
Q3:	B	Q3:	C	Q3:		Q3:	A	Q3:	B
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	C
Q5:	A	Q5:	A	Q5:		Q5:	A	Q5:	C
Q6:	B	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	2a-d	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	A	Q1:	A	Q1:		Q1:	B	Q1:	B
Q2:	A	Q2:	A	Q2:		Q2:	A	Q2:	A
Q3:	B	Q3:	C	Q3:		Q3:	A	Q3:	A
Q4:	C	Q4:	A	Q4:		Q4:	A	Q4:	B
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	A
Q6:	A	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is intact.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	3	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control	
Q1:	B	Q1:	Q1:	Q1:	B	Q1:	B
Q2:	C	Q2:	Q2:	Q2:	C	Q2:	C
Q3:	C	Q3:	Q3:	Q3:	A	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	C	Q4:	C
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	C
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	A
Q7:	A					Q7:	C
Q8:	C						
Q9a:							
Q9b:	A						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is lost or not present.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	4	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	A	Q1:	B	Q1:		Q1:	B	Q1:	B
Q2:	A	Q2:	A	Q2:		Q2:	A	Q2:	A
Q3:	C	Q3:	C	Q3:		Q3:	A	Q3:	C
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	C
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	A
Q6:	A	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	5	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	B	Q1:	C	Q1:		Q1:	B	Q1:	B
Q2:	B	Q2:	C	Q2:		Q2:	B	Q2:	A
Q3:	C	Q3:	C	Q3:		Q3:	B	Q3:	C
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	B
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	B
Q6:	A	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	B								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	6	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control	
Q1:	B	Q1:	Q1:	Q1:	B	Q1:	A
Q2:	C	Q2:	Q2:	Q2:	B	Q2:	B
Q3:	C	Q3:	Q3:	Q3:	C	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	C	Q4:	A
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	C
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	A
Q7:	A					Q7:	C
Q8:	C						
Q9a:							
Q9b:	A						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	7	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	B	Q1:		Q1:	A	Q1:	A	Q1:	A
Q2:	A	Q2:		Q2:	C	Q2:	A	Q2:	A
Q3:	A	Q3:		Q3:	C	Q3:	A	Q3:	A
Q4:	C	Q4:		Q4:	B	Q4:	A	Q4:	C
Q5:	A	Q5:		Q5:	A	Q5:	C	Q5:	A
Q6:	A	Q6:		Q6:	A	Q6:	B	Q6:	C
Q7:	B							Q7:	C
Q8:	A								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides diverse wildlife habitat.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	The wetland's fish habitat function is impacted or degraded.
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is intact.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	8	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	B	Q1:		Q1:	A	Q1:	A	Q1:	A
Q2:	A	Q2:		Q2:	C	Q2:	A	Q2:	A
Q3:	B	Q3:		Q3:	A	Q3:	B	Q3:	C
Q4:	C	Q4:		Q4:	B	Q4:	B	Q4:	C
Q5:	A	Q5:		Q5:	A	Q5:	C	Q5:	A
Q6:	A	Q6:		Q6:	A	Q6:	B	Q6:	C
Q7:	B							Q7:	C
Q8:	A								
Q9a:									
Q9b:	B								

Wildlife Habitat:	The wetland provides diverse wildlife habitat.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	The wetland's fish habitat function is intact.
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is lost or not present.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD1993-0106-1-2	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	B	Q1:	B	Q1:		Q1:	A	Q1:	B
Q2:	A	Q2:	A	Q2:		Q2:	A	Q2:	A
Q3:	C	Q3:	C	Q3:		Q3:	B	Q3:	B
Q4:	B	Q4:	A	Q4:		Q4:	B	Q4:	B
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	A
Q6:	A	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD1994-0067	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control	
Q1:	B	Q1:	Q1:	Q1:	B	Q1:	B
Q2:	C	Q2:	Q2:	Q2:	C	Q2:	C
Q3:	C	Q3:	Q3:	Q3:	B	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	C	Q4:	B
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	C
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	A
Q7:	A					Q7:	C
Q8:	C						
Q9a:							
Q9b:	A						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is lost or not present.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD1996-0016-1-2, WD2008-0030	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	A	Q1:	C	Q1:		Q1:	A	Q1:	B
Q2:	A	Q2:	A	Q2:		Q2:	A	Q2:	A
Q3:	C	Q3:	C	Q3:		Q3:	C	Q3:	B
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	B
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	A
Q6:	A	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:			
WetlandCode:	WD1997-0473-1	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control	
Q1:	B	Q1:	Q1:	Q1:	A	Q1:	B
Q2:	C	Q2:	Q2:	Q2:	B	Q2:	B
Q3:	C	Q3:	Q3:	Q3:	B	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	C	Q4:	A
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	C
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	A
Q7:	A					Q7:	C
Q8:	C						
Q9a:							
Q9b:	A						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD1997-0473-2	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control	
Q1:	B	Q1:	Q1:	Q1:	B	Q1:	B
Q2:	B	Q2:	Q2:	Q2:	A	Q2:	A
Q3:	C	Q3:	Q3:	Q3:	C	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	C	Q4:	C
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	B
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	A
Q7:	A					Q7:	C
Q8:	C						
Q9a:							
Q9b:	A						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD1999-0201	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams		Fish Habitat Lakes/Ponds		Water Quality		Hydrologic Control	
Q1:	B	Q1:	C	Q1:		Q1:	B	Q1:	B
Q2:	C	Q2:	A	Q2:		Q2:	C	Q2:	C
Q3:	C	Q3:	C	Q3:		Q3:	B	Q3:	B
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	C
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	C
Q6:	A	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is lost or not present

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD2008-0618-1	**ProjectNumber:**	209503.1

Wildlife Habitat		**Fish Habitat Streams**		**Fish Habitat Lakes/Ponds**		**Water Quality**		**Hydrologic Control**	
Q1:	B	Q1:	C	Q1:		Q1:	A	Q1:	B
Q2:	A	Q2:	B	Q2:		Q2:	A	Q2:	A
Q3:	C	Q3:	C	Q3:		Q3:	A	Q3:	C
Q4:	C	Q4:	A	Q4:		Q4:	B	Q4:	B
Q5:	A	Q5:	C	Q5:		Q5:	A	Q5:	A
Q6:	A	Q6:	C	Q6:		Q6:	C	Q6:	A
Q7:	A							Q7:	C
Q8:	C								
Q9a:									
Q9b:	A								

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	The wetland's fish habitat function is impacted or degraded.
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD2008-0618-2-4	**ProjectNumber:**	209503.1

Wildlife Habitat		Fish Habitat Streams	Fish Habitat Lakes/Ponds	Water Quality		Hydrologic Control	
Q1:	B	Q1:	Q1:	Q1:	B	Q1:	B
Q2:	C	Q2:	Q2:	Q2:	A	Q2:	A
Q3:	C	Q3:	Q3:	Q3:	C	Q3:	C
Q4:	C	Q4:	Q4:	Q4:	C	Q4:	B
Q5:	B	Q5:	Q5:	Q5:	A	Q5:	C
Q6:	B	Q6:	Q6:	Q6:	C	Q6:	A
Q7:	A					Q7:	C
Q8:	C						
Q9a:							
Q9b:	B						

Wildlife Habitat:	The wetland provides habitat for some wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	N/A
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Date(s):	4/20/2010	**Investigator(s):**	Nancy Holzhauser, Alison Sigler
Project Name:	Lowell LWI		
WetlandCode:	WD2009-0442	**ProjectNumber:**	209503.1

Wildlife Habitat		**Fish Habitat Streams**	**Fish Habitat Lakes/Ponds**		**Water Quality**		**Hydrologic Control**	
Q1:	A	Q1:	Q1:	A	Q1:	A	Q1:	A
Q2:	B	Q2:	Q2:	C	Q2:	A	Q2:	A
Q3:	B	Q3:	Q3:	C	Q3:	B	Q3:	A
Q4:	C	Q4:	Q4:	B	Q4:	A	Q4:	B
Q5:	A	Q5:	Q5:	A	Q5:	A	Q5:	B
Q6:	A	Q6:	Q6:	A	Q6:	B	Q6:	C
Q7:	B						Q7:	C
Q8:	A							
Q9a:								
Q9b:	A							

Wildlife Habitat:	The wetland provides diverse habitat for wildlife species.
Fish Habitat - Streams:	N/A
Fish Habitat - Lakes/Ponds:	The wetland's fish habitat function is impacted or degraded.
Water Quality:	The wetland's water quality function is impacted or degraded.
Hydrologic Control:	The wetland's hydrologic control function is impacted or degraded.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	1	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Emergent veg. or wet meadow. Moderate degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Developed uses within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Less than 50% of stream shaded by riparian vegetation. Stream channel natural/returning to natural physical character. Stream contains less than 10% of instream structures. Upstream not listed as water quality limited. Exclusive Forest use or Open Space within 500 ft of wetland edge. No fish species present during the year.
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Developed uses within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	None of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Waterflow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Residential land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	2a-d	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. Moderate degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. Upstream not listed as water quality limited. Exclusive Developed uses within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	More than 75% of stream shaded by riparian vegetation. Stream channel natural/returning to natural physical character. Stream contains less than 10% of instream structures. Upstream not listed as water quality limited. Developed uses within 500 ft of wetland edge. No fish species present during the year.
Fish Habitat - Lakes/Ponds	N/A	N/A
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. More than 5 acres of wetland area. Developed uses within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	None of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is more than 5 acres. Minor restrictions slow down waterflow out of the wetland. Woody vegetation is dominant cover type. Developed uses within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	3	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with > 5 species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Developed uses within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. No evidence of flooding or ponding during the growing season. High (>60%) degree of wetland vegetation cover. Less than 0.5 acre and wetland is not connected to other wetland within a 3 mile radius. Developed uses within 500 feet of wetland edge. Upstream not listed as a water quality limited.
Hydrologic Control	The wetland's hydrologic control function is lost or not present.	None of wetland located within 100-year floodplain or enclosed basin. No evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Water flow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream of assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	4	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. Upstream not listed as water quality limited. Developed uses within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Between 50 and 75% of stream shaded by riparian vegetation. Stream channel natural/returning to natural physical character. Stream contains less than 10% of instream structures. Upstream not listed as water quality limited. Developed uses within 500 ft of wetland edge. No fish species present during the year.
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Less than 0.5 acre of wetland connected to other wetlands within a 3 mile radius. Developed uses within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	None of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Waterflow out of wetland is unrestricted. Woody vegetation is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream of assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	5	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with >5 plant species. Emergent veg. & ponding. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. No upstream reaches are listed as water quality limited. Developed uses within 500 feet of wetland edge. Between 10%- 40% of wetland edge bordered by veg. Buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Less than 50% of stream shaded by riparian vegetation. Physical character of stream channel extensively modified/piped. Stream contains less than 10% of instream structures. No upstream reaches are listed as water quality limited. Developed uses within 500 ft of wetland edge. No fish species present during the year.
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during the growing season. Moderate degree of wetland vegetation cover. Less than 0.5 acre of wetland connected to other wetlands within a 3 mile radius. Developed uses within 500 feet of wetland edge. No upstream reaches are listed as water quality limited.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	None of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Minor restrictions slow down water flow out of the wetland. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use upstream in watershed above LWI study area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	6	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Unable to determine evidence of flooding or ponding during the growing season (or inapplicable). Low (<60%) degree of wetland vegetation cover. Less than 0.5 acre and wetland is not connected to other wetland within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	All or part of wetland located within 100-year floodplain or enclosed basin. Unable to determine evidence of flooding or ponding during the growing season (or not applicable). Area is less than 0.5 acre. Waterflow out of wetland is restricted or no outlet. Emergent veg. or wet meadow is dominant cover type. Forested land use in watershed upstream of LWI study area. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	7	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides diverse wildlife habitat.	One Cowardin wetland class with >5 plant species. Woody vegetation is dominant vegetation cover. High degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. One or more upstream reaches are listed moderate water quality. Exclusive Forest use or Open Space within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	The wetland's fish habitat function is impacted or degraded.	Less than 20% of shoreline shaded by riparian vegetation. Deep and shallow water present. Less than 10% of complex object cover. One or more upstream reaches are listed moderate water quality. Exclusive Forest use or Open Space within 500 ft of wetland edge. Salmon, trout, or sensitive species present sometime during the year.
Water Quality	The wetland's water quality function is impacted or degraded.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. More than 5 acres of wetland area. Exclusive Forest use or Open Space within 500 feet of wetland edge. One or more upstream reaches are listed moderate water quality stream reaches in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is intact.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is more than 5 acres. Water flow out of wetland is unrestricted. Woody vegetation is dominant cover type. Exclusive Forest Use or Open Space within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use upstream in watershed from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	8	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides diverse wildlife habitat.	One Cowardin class with >5 plant species. Woody vegetation is dominant vegetation cover. Moderate degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. One or more upstream reaches are listed moderate water quality. Between 10%-40% of wetland edge bordered by a veg. buffer at least 25ft wide. Open Space within 500ft of wetland edge.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	The wetland's fish habitat function is intact.	More than 60% of shoreline shaded by riparian vegetation. Deep and shallow water present. Less than 10% of complex cover objects. contains more than 25% of instream structures. One or more upstream reaches are listed moderate water quality. Exclusive Forest use or Open Space within 500 ft of wetland edge. Salmon, trout, or sensitive species present sometime during the year.
Water Quality	The wetland's water quality function is impacted or degraded.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Moderate (approx. 60%) degree of wetland vegetation cover. Less than 0.5 acres in size and connected to other wetlands within a 3 mile radius. Forest use or Open Space within 500 feet of wetland edge. One or more upstream reaches are listed moderate water quality stream reaches in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is lost or not present.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Waterflow out of wetland is unrestricted. Woody vegetation is dominant cover type. Exclusive Forest Use or Open Space within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use in watershed upstream from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD1993-0106-1-2	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin class with >5 plant species. Woody vegetation is dominant veg. type. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. No upstream reaches are listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Between 50 and 75% of stream shaded by riparian vegetation. Stream channel natural/returning to natural physical character. Stream contains less than 10% of instream structures. No upstream reaches are listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. No fish species present during the year.
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Moderate degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. No upstream reaches are listed as water quality limited.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	Not located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Minor restrictions slow down waterflow out of the wetland. Woody vegetation is the dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use in watershed upstream from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD1994-0067	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with >5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. No evidence of flooding or ponding during the growing season. Moderate degree of wetland vegetation cover. Less than 0.5 acre of wetland. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is lost or not present.	Not located within 100-year floodplain or enclosed basin. No evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Minor restrictions slow down waterflow out of the wetland. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use in watershed upstream from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD1996-0016-1-2, WD2008-0030	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	Two or more Cowardin wetland classes. Woody vegetation is dominant vegetation cover. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. No upstream reaches are listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Less than 50% of stream shaded by riparian vegetation. Stream channel natural/returning to natural physical character. Stream contains less than 10% of instream structures. No upstream reaches are listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. No fish present during the year.
Fish Habitat - Lakes/Ponds	N/A	N/A
Water Quality	The wetland's water quality function is impacted or degraded.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during the growing season (or inapplicable). Low (<60%) degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. No upstream reaches are listed as water quality limited.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	Not located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season (or not applicable). Area is between 0.5 and 5 acres. Minor restrictions slow down water flow out of the wetland. Woody vegetation is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use upstream in watershed above assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD1997-0473-1	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water, but water within 1 mile. Wetland not connected to other wetlands, but within 3 mile radius of other wetlands. Upstream not listed as water quality limited. Developed uses within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Unable to determine evidence of flooding or ponding during the growing season (or inapplicable). Moderate (approx. 60%) degree of wetland vegetation cover. Less than 0.5 acre and wetland is not connected to other wetland within a 3 mile radius. Developed uses are within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	No part of wetland located within 100-year floodplain or enclosed basin. Unable to determine evidence of flooding or ponding during the growing season (or not applicable). Area is less than 0.5 acre. Water flow out of wetland is restricted or no outlet. Emergent veg. or wet meadow is dominant cover type. Developed uses are within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land uses located upstream in watershed above assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD1997-0473-2	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with >5 plant species. Emergent veg. & ponding or open water only. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water by surface water. Wetland not connected to other wetlands within a 3 mile radius. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	N/A
Fish Habitat - Lakes/Ponds	N/A	N/A
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Low degree of wetland vegetation cover. Less than 0.5 acre of wetland, not connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	Not located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area less than 0.5 acre in size. Waterflow out of wetland is unrestricted. Emergent veg. and ponding , or open water only is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested or natural area land use upstream of assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD1999-0201	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with more than 5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands, by a stream. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Less than 50% of stream shaded by riparian vegetation. Stream channel natural/returning to natural physical character. Stream contains less than 10% of instream structures. Upstream not listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. No fish species present during the year.
Fish Habitat - Lakes/Ponds	N/A	
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. No evidence of flooding or ponding during the growing season. Moderate degree of wetland vegetation cover. Between 0.5 and 5 acres of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. Upstream not listed as water quality limited in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is lost or not present.	Not located within 100-year floodplain or enclosed basin. No evidence of flooding or ponding during the growing season. Area is between 0.5 and 5 acres. Water flow out of wetland is unrestricted. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forest land use in watershed upstream from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD2008-0618-1	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin class with >5 plant species. Woody vegetation is the dominant cover type. Low degree Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. No upstream reaches are water quality limited. Residential/Industrial land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	The wetland's fish habitat function is impacted or degraded.	Less than 50% of stream shaded by riparian vegetation. Portions of stream channel modified. Stream contains less than 10% of instream structures. No upstream reaches are listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. No fish are present during the year.
Fish Habitat - Lakes/Ponds	N/A	N/A
Water Quality	The wetland's water quality function is impacted or degraded.	Surface flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. High (>60%) degree of wetland vegetation cover. Less than 0.5 acre of wetland connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. No upstream reaches are listed as water quality limited.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	Not located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Minor restrictions slow down water flow out of the wetland. Woody vegetation is the dominant cover type. Residential land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use in watershed upstream from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD2008-0618-2-4	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides habitat for some wildlife species.	One Cowardin wetland class with >5 plant species. Emergent veg. or wet meadow. Low degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland not connected to another body of water by surface water. Not connected to wetlands but wetlands within a 3 mile radius. No upstream reaches are listed as water quality limited. Residential/Industrial land use within 500 feet of wetland edge. Between 10%- 40% wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	N/A
Fish Habitat - Lakes/Ponds	N/A	N/A
Water Quality	The wetland's water quality function is impacted or degraded.	Precipitation or sheet flow is wetland's primary source of water. Evidence of flooding or ponding during part of the growing season. Low (<60%) degree of wetland vegetation cover. Less than 0.5 acre of wetland not connected to other wetlands within a 3 mile radius. Residential/Industrial land use within 500 feet of wetland edge. No upstream reaches are water quality limited. quality stream reaches in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	Not located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season. Area is less than 0.5 acre. Minor restrictions slow down water flow out of the wetland. Emergent veg. or wet meadow is dominant cover type. Residential/Industrial land use within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use in watershed upstream from assessment area.

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLGY

Function and Condition Summary Sheet for the Oregon Method

Wetland Code:	WD2009-0442	**Project Number:**	209503.1

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	The wetland provides diverse habitat for wildlife species.	Two or more Cowardin wetland classes. Emergent veg cover and ponding are present. Moderate degree of Cowardin class interspersion. Less than 0.5 acre of unvegetated open water present. Wetland connected to another body of water by surface water. Wetland connected to other wetlands within a 3 mile radius. One or more upstream reaches are listed moderate water quality. Forested/Open Space land use within 500 feet of wetland edge. More than 40% of wetland edge bordered by veg. buffer 25 or more feet wide.
Fish Habitat - Streams	N/A	N/A
Fish Habitat - Lakes/Ponds	The wetland's fish habitat function is impacted or degraded.	Less than 20% of shoreline shaded by riparian vegetation. Less than 10% complex object cover. One or more upstream reaches are listed moderate water quality. Forested/Open Space land use within 500 feet of wetland edge. Salmon, trout, or sensitive species present sometime during the year.
Water Quality	The wetland's water quality function is impacted or degraded.	Surface flow (including streams and ditches) is wetland's primary source of water. Evidence of flooding or ponding during the growing season (or unapplicable). Moderate degree of wetland vegetation cover. .Greater than 5 acres of wetland connected to other wetlands within a 3 mile radius.Forested/Open Spaceland use within 500 feet of wetland edge. One or more upstream reaches are listed moderate water quality stream reaches in watershed or adjacent to the wetland.
Hydrologic Control	The wetland's hydrologic control function is impacted or degraded.	All or part of wetland located within 100-year floodplain or enclosed basin. Evidence of flooding or ponding during the growing season (or not applicable). Area is greater than 5 acres. Minor restrictions slow down waterflow out of the wetland. Emergent vegetation and ponding are dominant cover type. Exclusive Forest Use or Open Space within 500 ft of wetland on downstream or down-slope edge of wetland. Forested land use in watershed upstream from assessment area.

Lowell LWI - Wetlands of Special Interest Answers

Wetlands of Special Interest Questions - Refer to the attached OFWAM guide	Wetland Code												
	1	2a-d	3	4	5	6	7	7: Comments	8	8: Comments	1993-0106-1-2	WD1994-0067	WD1996-0016-1-2 & 2008-0030
Question 1	B	B	B	B	B	B	A	Chinook salmon, Oregon chub, and bull trout	A	Chinook salmon, Oregon chub, and bull trout	B	B	B
Question 2	B	B	B	B	B	B	B		B		B	B	B
Question 3	B	B	B	B	B	B	B		B		B	B	B
Question 4	B	B	B	B	B	B	B		B		B	B	B
Question 5	B	B	B	B	B	B	B		B		B	B	B
Question 6	B	B	B	B	B	B	B		B		B	B	B
Question 7	B	B	B	B	B	B	C	located on school grounds (public land)	C	located on Army Corps public land, unnamed park	B	B	B
Question 8	C	C	C	C	C	C	C		C		C	C	C
Question 9	C	C	C	C	C	C	C		C		C	C	C
Question 10	B	B	B	B	B	B	B		B		B	B	B
Wetland of Special Interest?	No	No	No	No	No	No	No		No		No	No	No

Lowell LWI - Wetlands of Special Interest Answers

Wetlands of Special Interest Questions - Refer to the attached OFWAM guide	Wetland Code							
	WD1997-0473-1	WD1997-0473-2	WD1999-0201	WD2008-0618-1	WD2008-0618-1: Comments	WD2008-0618-2-4	WD2009-0442	WD2009-0442: Comments
Question 1	B	B	B	B		B	A	Chinook salmon, Oregon chub, and bull trout
Question 2	B	B	B	B		B	B	
Question 3	B	B	B	B		B	B	
Question 4	B	B	B	B		B	B	
Question 5	B	B	B	B		B	B	
Question 6	B	B	B	B		B	B	
Question 7	B	B	B	C	partially located on public land	B	C	located on Army Corps public land, unnamed park
Question 8	C	C	C	C		C	C	
Question 9	C	C	C	C		C	C	
Question 10	B	B	B	B		B	B	
Wetland of Special Interest?	No	No	No	No		No	No	

APPENDIX E: WETLAND DETERMINATION DATA FORMS

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 10-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 01

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9337 **Long.:** -122.7809 **Datum:** NAD 83

Soil Map Unit Name: 107C: Philomath silty clay, 3 to 12 percent slopes **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
PRIVATE LOT WITH PERMISSION

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Festuca arundinacea	30	☑ 30.0%	FAC
2. Agrostis tenuis	46	☑ 46.0%	FAC
3. Ranunculus occidentalis	5	☐ 5.0%	FAC
4. Holcus lanatus	5	☐ 5.0%	FAC
5. Ranunculus orthorhynchus	2	☐ 2.0%	FACW
6. Potentilla gracilis	2	☐ 2.0%	FAC
7. Fragaria vesca	5	☐ 5.0%	UPL
8. Alopecurus pratensis	5	☐ 5.0%	FACW
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	7	x 2 =	14
FAC species	88	x 3 =	264
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	100 (A)		303 (B)

Prevalence Index = B/A = 3.030

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 01

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/1	100%						Silty Clay Loam	
6-16	10YR	5/1	100%						Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 10-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 02

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9339 **Long.:** -122.7821 **Datum:** NAD 83

Soil Map Unit Name: 52D: Hazelair silty clay loam, 7 to 20 percent slopes **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Rosa pisocarpa	5	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	5	= Total Cover	
Herb Stratum (Plot size:)			
1. Deschampsia cespitosa	20	☑ 20.0%	FACW
2. Festuca arundinacea	50	☑ 50.0%	FAC
3. Agrostis tenuis	20	☑ 20.0%	FAC
4. Daucus carota	5	☐ 5.0%	UPL
5. Hypochaeris radicata	5	☐ 5.0%	FACU
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	20	x 2 =	40	
FAC species	75	x 3 =	225	
FACU species	5	x 4 =	20	
UPL species	5	x 5 =	25	
Column Totals:	115	(A)	310	(B)

Prevalence Index = B/A = 2.696

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 02

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/2	100%						Silty Clay Loam	
6-16	2.5YR	5/1	95%	10YR	4/6	5%	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	0.25
Water Table Present?	Yes ◉	No ○	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

INUNDATION AT 1/4 INCH

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 10-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 03

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): hillslope **Local relief (concave, convex, none):** concave **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9270 **Long.:** -122.7846 **Datum:** NAD83

Soil Map Unit Name: 102C: Panther silty clay loam, 2 to 12 percent slopes **NWI classification:** PEMA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Quercus garryana	25	☑ 62.5%	UPL
2. Fraxinus latifolia	15	☑ 37.5%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Mentha pulegium	10	☐ 10.0%	OBL
2. Festuca arundinacea	60	☑ 60.0%	FAC
3.	0	☐ 0.0%	
4. Ranunculus aquatilis	5	☐ 5.0%	OBL
5. Taraxacum officinale	5	☐ 5.0%	FACU
6. Alopecurus pratensis	20	☑ 20.0%	FACW
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	15	x 1 =	15
FACW species	35	x 2 =	70
FAC species	60	x 3 =	180
FACU species	5	x 4 =	20
UPL species	25	x 5 =	125
Column Totals:	140 (A)		410 (B)

Prevalence Index = B/A = 2.929

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 03

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR	2/2	95%	7.5YR	3/4	5%	C	M	Silty Clay Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: CRUSHED ROCK, FILL

Depth (inches): 14

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	7
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	6

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 10-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 04

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** concave **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9303 **Long.:** -122.7842 **Datum:** NAD83

Soil Map Unit Name: 102C: Panther silty clay loam, 2 to 12 percent slopes **NWI classification:** PEMA

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
OFF-SITE VERIFICATION

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Quercus garryana	20	☑ 50.0%	UPL
2. Fraxinus latifolia	20	☑ 50.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Juncus sp.	80	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	80	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	20	x 5 =	100
Column Totals:	120 (A)		300 (B)

Prevalence Index = B/A = 2.500

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Juncus sp. Assumed to be FACW.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 04

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

SOILS WERE SATURATED, ASSUMED TO BE HYDRIC

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

SATURATION WAS OBSERVED OFF-SITE BY VISUAL CONFIRMATION.

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 05

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** concave **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9352 **Long.:** -122.7817 **Datum:** NAD83

Soil Map Unit Name: 102C: Panther silty clay loam, 2 to 12 percent slopes **NWI classification:** PEMC

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Fraxinus latifolia	50	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Spiraea douglasii	20	☑ 20.0%	FACW
2. Rubus discolor	80	☑ 80.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	100	= Total Cover	
Herb Stratum (Plot size:)			
1. Geum macrophyllum	2	☑ 40.0%	FACW
2. Stachys cooleyae	3	☑ 60.0%	UPL
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	5	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 95

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	72	x 2 =	144
FAC species	0	x 3 =	0
FACU species	80	x 4 =	320
UPL species	3	x 5 =	15
Column Totals:	155 (A)		479 (B)

Prevalence Index = B/A = 3.090

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 05

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/2	100%						Silt Loam	
6-16	10YR	4/1	90%	7.5YR	5/4	10%	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	2
Water Table Present?	Yes ◉	No ○	Depth (inches):	3
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 06

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9351 **Long.:** -122.7805 **Datum:** NAD83

Soil Map Unit Name: 52D: Hazelair silty clay loam, 7 to 20 percent slopes **NWI classification:** PEMC

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Fraxinus latifolia	10	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Rosa pisocarpa	20	☑ 40.0%	FAC
2. Rubus discolor	20	☑ 40.0%	FACU
3. Rosa nutkana	10	☑ 20.0%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	50	= Total Cover	
Herb Stratum (Plot size:)			
1. Festuca arundinacea	40	☑ 40.0%	FAC
2. Agrostis tenuis	40	☑ 40.0%	FAC
3. Juncus tenuis	15	☐ 15.0%	FACW
4. Camassia quamash	5	☐ 5.0%	FACW
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 5 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 83.3% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	**x 1 =**	0
FACW species	30	**x 2 =**	60
FAC species	110	**x 3 =**	330
FACU species	20	**x 4 =**	80
UPL species	0	**x 5 =**	0
Column Totals:	160 **(A)**		470 **(B)**

Prevalence Index = B/A = 2.938

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 06

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	4/1	100%						Silty Clay Loam	
8-16	10YR	5/1	100%						Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	2
Water Table Present?	Yes ◉	No ○	Depth (inches):	6
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

INUNDATED

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 07

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** flat **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9356 **Long.:** -122.7795 **Datum:** NAD83

Soil Map Unit Name: 107C: Philomath silty clay, 3 to 12 percent slopes **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Fraxinus latifolia	10	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Rosa pisocarpa	10	☑ 66.7%	FAC
2. Rubus discolor	5	☑ 33.3%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	15	= Total Cover	
Herb Stratum (Plot size:)			
1. Deschampsia cespitosa	30	☑ 30.0%	FACW
2. Festuca arundinacea	55	☑ 55.0%	FAC
3. Holcus lanatus	10	☐ 10.0%	FAC
4. Juncus tenuis	5	☐ 5.0%	FACW
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 80.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	45	x 2 =	90
FAC species	75	x 3 =	225
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	155 (A)		335 (B)

Prevalence Index = B/A = 2.161

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 07

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/1	100%						Silty Clay Loam	
4-16	10YR	4/1	90%	10YR	6/4	5%	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	8
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 08

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9356 **Long.:** -122.7790 **Datum:** NAD83

Soil Map Unit Name: 52D: Hazelair silty clay loam, 7 to 20 percent slopes **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
ON EAST SIDE OF STREAM

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Rubus discolor	20	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	20	= Total Cover	
Herb Stratum (Plot size:)			
1. Daucus carota	5	☐ 5.0%	UPL
2. Festuca arundinacea	45	☑ 45.0%	FAC
3. Ranunculus orthorhynchus	10	☐ 10.0%	FACW
4. Hypochaeris radicata	10	☐ 10.0%	FACU
5. Holcus lanatus	10	☐ 10.0%	FAC
6. Agrostis tenuis	20	☑ 20.0%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	10	x 2 =	20	
FAC species	75	x 3 =	225	
FACU species	30	x 4 =	120	
UPL species	5	x 5 =	25	
Column Totals:	120	(A)	390	(B)

Prevalence Index = B/A = 3.250

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrologic Vegetation
- ☑ 2 - Dominance Test is > 50%
- ☐ 3 - Prevalence Index is ≤3.0 [1]
- ☐ 4 - Morphological Adaptations [1] (Provide supporting data in Remarks or on a separate sheet)
- ☐ 5 - Wetland Non-Vascular Plants [1]
- ☐ Problematic Hydrophytic Vegetation [1] (Explain)

[1] Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 08

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-8	7.5YR	3/2	100%						Silty Clay Loam	
8-16	7.5YR	4/2	80%	5YR	4/6	20%	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉	No ○	Depth (inches):	-0.5
Water Table Present?	Yes ◉	No ○	Depth (inches):	7
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 09

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9347 **Long.:** -122.7779 **Datum:** NAD83

Soil Map Unit Name: 52D: Hazelair silty clay loam, 7 to 20 percent slopes **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
SAMPLED AT UPPER END OF WETLAND, WETLAND IS ON A SLOPE

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Festuca arundinacea	40	☑ 40.0%	FAC
2. Agrostis tenuis	25	☑ 25.0%	FAC
3. Deschampsia cespitosa	10	☐ 10.0%	FACW
4. Cynosurus echinatus	10	☐ 10.0%	UPL
5. Daucus carota	5	☐ 5.0%	UPL
6. Juncus tenuis	5	☐ 5.0%	FACW
7. Holcus lanatus	5	☐ 5.0%	FAC
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	100 (A)		315 (B)

Prevalence Index = B/A = 3.150

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 09

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-3	7.5YR	3/2	100%						Silty Clay Loam	
3-5	7.5YR	3/2	70%	5YR	4/4	30%	C	M	Silty Clay	
5-16	7.5YR	5/2	60%	5YR	4/4	40%	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☑ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☑ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ◉ No ○	Depth (inches):	0.5	
Water Table Present?	Yes ◉ No ○	Depth (inches):	9.5	**Wetland Hydrology Present?** Yes ◉ No ○
Saturation Present? (includes capillary fringe)	Yes ◉ No ○	Depth (inches):	0	

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 10

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 11 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoulder slope **Local relief (concave, convex, none):** convex **Slope:** / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9362 **Long.:** -122.7765 **Datum:** NAD83

Soil Map Unit Name: 52D: Hazelair silty clay loam, 7 to 20 percent slopes **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
LOCATION NEAR A DRAW, MOSAIC WITH UPLAND AND A SMALL PERCENTAGE OF PSS

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Agrostis tenuis	35	☑ 35.0%	FAC
2. Holcus lanatus	30	☑ 30.0%	FAC
3. Festuca arundinacea	20	☑ 20.0%	FAC
4. Hypochaeris radicata	10	☐ 10.0%	FACU
5. Juncus tenuis	5	☐ 5.0%	FACW
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	85	x 3 =	255
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		305 (B)

Prevalence Index = B/A = 3.050

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 10

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/2	100%						Silty Clay	
3-8	10YR	2/2	90%	5YR	4/4	10%	C	M	Silty Clay Loam	
8-16	10YR	5/2	90%	10YR	4/3	10%	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	7.5
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	2

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 11

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 14 T 19S R 1W

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9182 **Long.:** -122.7847 **Datum:** NAD83

Soil Map Unit Name: 105A: Pengra silt loam, 1 to 4 percent slopes **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
ELEMENTARY SCHOOL FIELD, NORTHEAST CORNER

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size:)			
1. Poa annua	15	☐ 15.0%	FAC
2. Bellis perennis	5	☐ 5.0%	UPL
3. Agrostis tenuis	60	☑ 60.0%	FAC
4. Unidentified moss	15	☐ 15.0%	UPL
5. Hypochaeris radicata	5	☐ 5.0%	FACU
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0	
FACW species	0	x 2 =	0	
FAC species	75	x 3 =	225	
FACU species	5	x 4 =	20	
UPL species	20	x 5 =	100	
Column Totals:	100	(A)	345	(B)

Prevalence Index = B/A = 3.450

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☐ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:
Unidentified moss assumed to be upland.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 11

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	2/2	100%						Silty Clay Loam	
7-16	10YR	3/2	95%	7.5YR	3/3	5%	C	M	Silty Clay Loam	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks: Procedure for Problematic Hydric Soils: 1) Verify that one or more indicators of hydrophytic veg are present: Yes; 2) Verify that at least one primary or two seconday indicators of wetland hydrology are present: Yes (A2, A3); 3) Describe soil profile and landscape: soil profile described above, did not meet F6 because redox was faint, Landscape: flat and no relief and located at elementary school field; 4) Best professional judgement indicates that this area would be saturated for at least two weeks during the growing season- April, May, or June.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	7
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 12

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 14 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoreline **Local relief (concave, convex, none):** concave **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9151 **Long.:** -122.7833 **Datum:** NAD83

Soil Map Unit Name: 121C: Salkum silty clay loam, 8 to 16 percent slopes **NWI classification:** L1UBHh

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
OFF SITE VERIFICATION, NORTH SIDE OF DEXTER LAKE

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Populus balsamifera	100	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	100	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Salix lasiandra	20	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	20	= Total Cover	
Herb Stratum (Plot size:)			
1. Carex obnupta	100	☑ 100.0%	OBL
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	**x 1 =**	100
FACW species	20	**x 2 =**	40
FAC species	100	**x 3 =**	300
FACU species	0	**x 4 =**	0
UPL species	0	**x 5 =**	0
Column Totals:	220	**(A)**	440 **(B)**

Prevalence Index = B/A = 2.000

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 12

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☑ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

OFF-SITE, SOILS ARE SATURATED AND ASSUMED HYDRIC.

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ○	No ◉	Depth (inches):	
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast Region

Project/Site: LOWELL LWI **City/County:** LOWELL **Sampling Date:** 11-Mar-10

Applicant/Owner: LANE COUNCIL OF GOVERNMENTS **State:** OR **Sampling Point:** SP 13

Investigator(s): NANCY HOLZHAUSER, ALISON SIGLER **Section, Township, Range:** S 14 T 19S R 1W

Landform (hillslope, terrace, etc.): Shoreline **Local relief (concave, convex, none):** flat **Slope:** 0.0% / 0.0 °

Subregion (LRR): LRR A **Lat.:** 43.9151 **Long.:** -122.7719 **Datum:** NAD83

Soil Map Unit Name: 100:Oxley gravelly silt loam **NWI classification:**

Are climatic/hydrologic conditions on the site typical for this time of year? Yes ◉ No ○ **(If no, explain in Remarks.)**

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **significantly disturbed?** **Are "Normal Circumstances" present?** Yes ◉ No ○

Are Vegetation ☐ **, Soil** ☐ **, or Hydrology** ☐ **naturally problematic?** **(If needed, explain any answers in Remarks.)**

Summary of Findings - Attach site map showing sampling point locations, transects, important features, et

Hydrophytic Vegetation Present? Yes ◉ No ○	**Is the Sampled Area within a Wetland?** Yes ◉ No ○
Hydric Soil Present? Yes ◉ No ○	
Wetland Hydrology Present? Yes ◉ No ○	

Remarks:
JUST NORTH OF DEXTER LAKE, WETLAND HAS UPLAND INCLUSIONS,MOSAIC

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size:)			
1. Fraxinus latifolia	40	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	40	= Total Cover	
Sapling/Shrub Stratum (Plot size:)			
1. Rubus discolor	10	☑ 100.0%	FACU
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	10	= Total Cover	
Herb Stratum (Plot size:)			
1. Phalaris arundinacea	15	☑ 50.0%	FACW
2. Camassia quamash	10	☑ 33.3%	FACW
3. Juncus patens	5	☐ 16.7%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	30	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 70

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	80 (A)		180 (B)

Prevalence Index = B/A = 2.250

Hydrophytic Vegetation Indicators:

- ☐ **1 - Rapid Test for Hydrologic Vegetation**
- ☑ **2 - Dominance Test is > 50%**
- ☑ **3 - Prevalence Index is ≤3.0** [1]
- ☐ **4 - Morphological Adaptations** [1] **(Provide supporting data in Remarks or on a separate sheet)**
- ☐ **5 - Wetland Non-Vascular Plants** [1]
- ☐ **Problematic Hydrophytic Vegetation** [1] **(Explain)**

[1] **Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.**

Hydrophytic Vegetation Present? Yes ◉ No ○

Remarks:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS

Soil

Sampling Point: SP 13

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)		%	Redox Features Color (moist)		%	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	2/2	90%	7.5YR	4/4	10%	C	M	Silty Clay Loam	
2-7	10YR	3/2	60%	7.5YR	4/4	40%	C	M	Clay Loam	
7-16	10YR	4/1	50%	7.5YR	3/4	50%	C	M	Clay	

[1]Type: C=Concentration. D=Depletion. RM=Reduced Matrix, CS=Covered or Coated Sand Grains [2]Location: PL=Pore Lining. M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1) (except in MLRA 1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☑ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ☐ 2 cm Muck (A10)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type:

Depth (inches):

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)
- ☐ Salt Crust (B11)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres on Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Stunted or Stressed Plants (D1) (LRR A)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
- ☐ Drainage Patterns (B10)
- ☐ Dry Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (LRR A)
- ☐ Frost Heave Hummocks (D7)

Field Observations:

Surface Water Present?	Yes ○	No ◉	Depth (inches):	
Water Table Present?	Yes ◉	No ○	Depth (inches):	4
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

Describe Recorded Data (stream gauge, monitor well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX F: LOWELL LOCAL WETLANDS INVENTORY MAP

Map available as a separate pdf on DSL website.

APPENDIX G: WETLAND SUMMARY SHEETS

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/12/2010

Wetland Mapping Code: 1

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 2.42

Data Sheet Numbers: SP 10

Location

Legal: T 19S R 1W S 11 NE 1/4 NW 1/4 TaxLot: 1604

Other: Southeast of Jasper Lowell Road

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D: Hazelair silty clay loam, 7 to 20 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMY; HGM: Slope Valley

Dominant Vegetation and Comments:

Herbs: Agrostis tenuis (Colonial bentgrass), Holcus lanatus (Common velvet grass), Festuca arundinacea (Kentucky fescue). Comments: Wetland/Upland Mosaic. On-site determination. Located on a slope, with a northerly aspect, on a rural residential property. This wetland mosaic has a large upland meadow and a small percentage of PSS.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 3/10, 3/11/2010

Wetland Mapping Code: 2a-d

Investigator(s): Nancy Holzhauser, Alison Sigler

Size (acres): 10.81

Data Sheet Numbers: SP 01, SP 02, SP 05, SP 06, SP 07

Location

Legal: T 19S R 1W S 11 SW 1/4 NW 1/4, NW 1/4 NW 1/4, T 19S R 1W S 11 NE 1/4 NW 1/4, SE 1/4 NW 1/4

TaxLot: 200, 201, 301, 1604

Other: East of Jasper Lowell Road

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D, 89D, 102C, 107C

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PFO1Y, PSS1Y, PEMY; PEMB HGM: Slope Headwater

Dominant Vegetation and Comments:

Trees: Fraxinus latifolia (Oregon ash), Shrubs: Rosa pisocarpa (Peafruit rose), Rubus discolor (Himalayan blackberry), Herbs: Festuca arundinacea (Kentucky bluegrass), Agrostis tenuis (Colonial bentgrass), Deschampsia cespitosa (Tufted hair grass). Comments: Locally Significant Wetland. On-site determination. Wetland/Upland Mosaic. Wetland located on a rural residential property and includes small rolling hills and several streams.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: 3

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.25

Data Sheet Numbers: SP 08

Location

Legal: T 19S R 1W S 11 NE 1/4 NW 1/4 TaxLot: 201

Other: East of Jasper Lowell Road, east of perennial stream

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D: Hazelair silty clay loam, 7 to 20 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMY; HGM: Slope Valley

Dominant Vegetation and Comments:

Shrubs: Rubus discolor (Himalayan blackberry), Herbs: Festuca arundinacea (Kentucky bluegrass), Agrostis tenuis (Colonial bentgrass). Comments: On-site determination. Located on rural residential property, on a slope with a northerly aspect and on the east side of stream with mostly emergent vegetation.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: 4

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.42

Data Sheet Numbers: SP 09

Location

Legal: T 19S R 1W S 11 SE 1/4 NW 1/4

TaxLot: 201

Other: East of Jasper Lowell Road, east of perennial stream

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D: Hazelair silty clay loam, 7 to 20 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMY; HGM: Slope Valley

Dominant Vegetation and Comments:

Herbs: Festuca arundinacea (Kentucky bluegrass), Agrostis tenuis (Colonial bentgrass). Comments: On-site determination. Sampled at upper end of wetland. Wetland is located on rural residential property on a slope with a north aspect and includes emergent vegetation.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Investigator(s): Alison Sigler, Nancy Holzhauser

Data Sheet Numbers: SP 04

Wetland Mapping Code: 5

Size (acres): 0.42

Location

Legal: T 19S R 1W S 11 NW 1/4 SW 1/4 TaxLot: 415

Other: East of Industrial Way, west of N Moss Street

Basin: Middle Fork Willamette River

Soils

Mapped Series: 102C: Panther silty clay loam, 2 to 12 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMY; HGM: Slope Valley

Dominant Vegetation and Comments:

Trees: Quercus garryana (Oregon white oak), Fraxinus latifolia (Oregon ash), Herbs: Juncus sp. Comments: Off-site determination. Wetland located in an industrial area and drains south, downhill into a channel.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Investigator(s): Alison Sigler, Nancy Holzhauser

Data Sheet Numbers: SP 11

Wetland Mapping Code: 6

Size (acres): 0.34

Location

Legal: T 19S R 1W S 14 SW 1/4 NW 1/4

TaxLot: 7300, 9100

Other: South of E Main Street, in school field

Basin: Middle Fork Willamette River

Soils

Mapped Series: 105A: Pengra silt loam, 1 to 4 percent slopes,

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMY; HGM: Flats

Dominant Vegetation and Comments:

Herbs: Agrostis tenuis (Colonial bentgrass). Comments: On-site determination.
This wetland is located on the northeast corner of the elementary school field. The wetland is flat and has emergent vegetation and is regularly mowed.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: 7

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 9.14

Data Sheet Numbers: SP 13

Location

Legal: T 19S R 1W S14 NW 1/4 SE 1/4 TaxLot: 33

Other: South of N Boundary Road, east of Army Corps Park entrance road

Basin: Middle Fork Willamette River

Soils

Mapped Series: 100: Oxley gravelly silt loam

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PFO1A; HGM: Riverine Impounding

Dominant Vegetation and Comments:

Trees: Fraxinus latifolia (Oregon ash), Shrubs: Rubus discolor (Himalayan blackberry), Herbs: Festuca arundinacea (Kentucky bluegrass), Camassia quamash (Small camas). Comments: Locally Significant Wetland. Wetland/Upland Mosaic. 70% bare ground in herb stratum.
This forested wetland is flat, located on open space and is on the north bank of Dexter Lake.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Investigator(s): Alison Sigler, Nancy Holzhauser

Data Sheet Numbers: SP 12

Wetland Mapping Code: 8

Size (acres): 0.31

Location

Legal: T 19S R 1W S 14 NW 1/4 SW 1/4 TaxLot: 33

Other: Southwest at the end of N Moss Street, west of the wastewater treatment facility

Basin: Middle Fork Willamette River

Soils

Mapped Series: 121C: Salkum silty clay loam, 8 to 16 percent slopes

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PFO1A; HGM: Riverine Impounding

Dominant Vegetation and Comments:

Herbs: Agrostis tenuis (Colonial bentgrass), Festuca arundinacea (Kentucky bluegrass). Comments: Locally Significant Wetland. Off-site determination. Flat, forested wetland located on open space on the North side of Dexter Lake.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/10/2010

Wetland Mapping Code: WD1993-0106-1

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.20

Data Sheet Numbers: SP 03

Location

Legal: T 19S R 1W S 11 SW 1/4 SW 1/4

TaxLot: 6900, 7100, 7204,7203

Other: South of 7th Street, north of unnamed street below

Basin: Middle Fork Willamette River

Soils

Mapped Series: 102C: Panther silty clay loam, 2 to 12 percent slopes

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PFO1Y ; HGM: Riverine Flow-Through

Dominant Vegetation and Comments:

Trees: Quercus garryana (Oregon white oak), Fraxinus latifolia (Oregon ash), Herbs: Alopecurus pratensis (Meadow foxtail), Festuca arundinacea (Kentucky Fescue). Comments: On-site confirmation combined with off-site visual confirmation for off-site sections. This forested wetland is mostly flat, located in a residential area and is surrounded by lawns and private residences.
Assessed with WD1993-0106-2 for OFWAM; collective acreage is 1.05 acres.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/10/2010

Wetland Mapping Code: WD1993-0106-2

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.85

Data Sheet Numbers: SP 03

Location

Legal: T 19S R 1W S 11 SW 1/4 SW 1/4
T 19S R 1W S 14 Lot 8 NW 1/2

TaxLot: 7204, 7205, 7201, 7206, 7202, 7207, 8200

Basin: Middle Fork Willamette River

Other: South of 7th Street, north of Damon Street

Soils

Mapped Series: 102C: Panther silty clay loam, 2 to 12 percent slopes

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PFO1Y ; HGM: Riverine Flow-Through

Dominant Vegetation and Comments:

Trees: Quercus garryana (Oregon white oak), Fraxinus latifolia (Oregon ash), Herbs: Alopecurus pratensis (Meadow foxtail), Festuca arundinacea (Kentucky Fescue). Comments: Off-site confirmation. This forested wetland is mostly flat,located in a residential area and is surrounded by lawns and private residences. Assessed with WD1993-0106-1 for OFWAM; collective acreage is 1.05 acres.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/10/2010

Wetland Mapping Code: WD1994-0067

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.34

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 15 NE 1/4 NE 1/4 TaxLot: 803

Other: North of Pengra Road, west of Marina Vista Drive

Basin: Middle Fork Willamette River

Soils

Mapped Series: 89C: Nekia silty clay loam, 2 to 12 percent slopes, 113E: Ritner cobbly silty clay loam, 12 to 30 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMY; HGM: Slope Valley

Dominant Vegetation and Comments:

Field verification of previous delineation. Off-site confirmation. Wetland located on a gentle slope with a south aspect on private residential property. Wetland drains into a roadside ditch.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 3/11/2010

Wetland Mapping Code: WD1996-0016-1

Investigator(s): Nancy Holzhauser, Alison Sigler

Size (acres): 0.02

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 L8

TaxLot: 2304

Other: West of inaccessible road and N Moss Street, north of W 2nd Street

Basin: Middle Fork Willamette River

Soils

Mapped Series: 102C: Panther silty clay loam

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PFO1Y ; HGM: Riverine Flow-Through

Dominant Vegetation and Comments:

Off-site determination of previous delineation. Small forested wetland located near a channelized stream in a residential area; there was limited or no public viewing access of this wetland. Assessed with WD1996-0016-2 and WD2008-0030 for OFWAM; collective acreage is 0.69 acre.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 3/11/2010

Wetland Mapping Code: WD1996-0016-2

Investigator(s): Nancy Holzhauser, Alison Sigler

Size (acres): 0.16

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 L8

TaxLot: 2304

Other: West of inaccessible road and N Moss Street, north of W 2nd Street

Basin: Middle Fork Willamette River

Soils

Mapped Series: 102C: Panther silty clay loam

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PEMY; HGM: Riverine Flow-Through

Dominant Vegetation and Comments:

Off-site determination of previous delineation. Wetland is located in a residential area and includes a channelized stream; there was no public viewing access to this wetland. Assessed with WD1996-0016-1 and WD2008-0030 for OFWAM; collective acreage is 0.69 acre.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: WD1997-0473-1

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.12

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 NW 1/4 NE 1/4

TaxLot: 4001

Other: Located north of unnamed street off of Hyland Street between 3rd Street and 4th Street to the east

Basin: Middle Fork Willamette River

Soils

Mapped Series: 43E: Dixonville-Philomath-Hazelair complex, 12 to 35 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): Probably PEMY. HGM: Slope Valley

Dominant Vegetation and Comments:

Off-site and cannot see from a vantage point. This wetland is on a slope and is over 200 feet away upslope from the only accessible point on the gravel road below. Not sure if this wetland still exists.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/10/2010

Wetland Mapping Code: WD1997-0473-2

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.23

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 NW 1/4 NE 1/4, NE 1/4 NW 1/4, L 7

TaxLot: 4000, 5000

Other: Located south of unnamed street off of Hyland Street between 3rd Street and 4th Street to the east

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52B: Hazelair silty clay loam, 2 to 7 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMY; HGM: Slope Headwater

Dominant Vegetation and Comments:

Off-site determination of previous delineation. Emergent wetland is located around a draw that runs east-west on the slope on this private property. The east side of this draw has cattle pastured and there was a chicken coop and run kept just to the north side of this wetland, near the house.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: WD1999-0201

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 1.62

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 11 SE 1/4 SW 1/4

TaxLot: 403, 1606, 6704

Other: Northeast of E 6th Street

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D: Hazelair silty clay loam, 7 to 20 percent slopes

Hydrology

Hydrologic Source: Overland Flow

Wetland Classification(s): PEMB; HGM: Slope Headwater

Dominant Vegetation and Comments:

Off-site and on-site determination. Field verification of previous delineation. This emergent wetland is on a south facing slope and is located on private residential properties. It also includes portions of two streams within the wetland boundaries. Wetland/Upland Mosaic due to uneven terrain and upland hummocks.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 3/11/2010

Wetland Mapping Code: WD2008-0030

Investigator(s): Nancy Holzhauser, Alison Sigler

Size (acres): 0.51

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 NW 1/4 NW 1/4, L8 TaxLot: 2301

Other: West of inaccessible road and N Moss Street, north of W 2nd Street

Basin: Middle Fork Willamette River

Soils

Mapped Series: 102C: Panther silty clay loam

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PFO1Y; HGM: Riverine Flow-Through

Dominant Vegetation and Comments:

Off-site determination of previous delineation. Forested wetland is located in a residential area and includes a channelized stream; there was no public viewing access to this wetland.
Assessed with WD1996-0016-1 and -2 for OFWAM; collective acreage is 0.69 acre.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: WD2008-0618-1

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.22

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 SE 1/4 NW 1/4 TaxLot: 1500

Other: East of Hyland Lane, north of N Boundary Road

Basin: Middle Fork Willamette River

Soils

Mapped Series: 34: Courtney gravelly silty clay loam, 52D: Hazelair silty clay loam, 7 to 20 percent slopes, 121B: Salkum silty clay loam, 2 to 8 percent slopes, 121C: Salkum silty clay loam

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PFO1Y; HGM: Slope Valley

Dominant Vegetation and Comments:

On-site determination. Field verification of previous delineation.
Forested wetland is located on a slope along a stream channel near a residential area and within a new construction site that (based on the sign on-site) will be a high-density housing development.
Parts of the wetland are located on public land.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: WD2008-0618-2

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.1

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 SE 1/4 NW 1/4 TaxLot: 1500

Other: East of Hyland Lane, north of N Boundary Road

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D: Hazelair silty clay loam, 7 to 20 percent slopes

Hydrology

Hydrologic Source: Precipitation

Wetland Classification(s): PEMYd; HGM: Slope Valley

Dominant Vegetation and Comments:

On-site determination. Field verification of previous delineation.
This PEM wetland is a roadside ditch located within a new construction site that (based on the sign on-site) will be a high-density housing development. Large patch of Camassia quamash on-site.
Assessed with WD2008-0618-3 and -4 for OFWAM; collective acreage is 0.12 acre.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: WD2008-0618-3

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.02

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 SE 1/4 NW 1/4 TaxLot: 1500

Other: East of Hyland Lane, north of N Boundary Road

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D: Hazelair silty clay loam, 7 to 20 percent slopes

Hydrology

Hydrologic Source: Precipitation

Wetland Classification(s): PEMYd; HGM: Slope Valley

Dominant Vegetation and Comments:

On-site determination. Field verification of previous delineation.This PEM wetland is a roadside ditch located within a new construction site that (based on the sign on-site) will be a high-density housing development.
Assessed with WD2008-0618-2 and -4 for OFWAM; collective acreage is 0.12 acre.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: WD2008-0618-4

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 0.002

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S 14 SE 1/4 NW 1/4 TaxLot: 1500

Other: East of Hyland Lane, north of N Boundary Road

Basin: Middle Fork Willamette River

Soils

Mapped Series: 52D: Hazelair silty clay loam, 7 to 20 percent slopes

Hydrology

Hydrologic Source: Precipitation

Wetland Classification(s): PEMYd; HGM: Slope Valley

Dominant Vegetation and Comments:

On-site determination. Field verification of previous delineation.
This PEM wetland is a roadside ditch within a new construction site that (based on the sign on-site) will be a high-density housing development.
Assessed with WD2008-0618-2 and -3 for OFWAM; collective acreage is 0.12 acre.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

Lowell LWI

- Wetland Summary Sheet -

Date(s) of Field Verification: 03/11/2010

Wetland Mapping Code: WD2009-0442

Investigator(s): Alison Sigler, Nancy Holzhauser

Size (acres): 6.87

Data Sheet Numbers: N/A

Location

Legal: T 19S R 1W S14 NE 1/4 SW 1/4 & SE 1/4 NW 1/4, T 19S R 1W S 14 SW 1/4 NE 1/4 & NW 1/4, SE 1/4

TaxLot: 33, 3400

Other: South of N Boundary Road, east of Parker Lane

Basin: Middle Fork Willamette River

Soils

Mapped Series: 100: Oxley gravelly silt loam, 121C: Salkum silty clay loam, 8 to 16 percent slopes, 138E: Witzel very cobbly loam, 3 to 30 percent slopes

Hydrology

Hydrologic Source: Flooding

Wetland Classification(s): PFO1A, PEM1A; HGM: Floodplain

Dominant Vegetation and Comments:

Locally Significant Wetland. Wetland/Upland Mosaic. On-site determination. Field verification of previous delineation. Large flat, emergent/forested wetland complex on open space located on the north bank of Dexter Lake.

Wetland Classification Codes:

PFO = palustrine forested	PSS = palustrine scrub-shrub	RSB = riverine streambed (intermittent)
PEM = palustrine emergent	POW = palustrine open water	RUB = riverine unconsolidated bottom

APPENDIX H: GLOSSARY OF COWARDIN TERMS FOR LWI MAPS

Table H-1 describes Cowardin classes, subclasses, water regimes and special modifiers identified in the Lowell LWI study area. For further information about Cowardin class, water regime and special modifiers refer to *Classification of Wetlands and Deepwater Habitats of the United States* document (Cowardin et al., 1979).

Table H-1. Cowardin Wetland Habitat Classes and Water Regimes found in the Lowell Local Wetland Inventory

Labeled Feature on Map	Cowardin Class / Subclass	Water Regime	Special Modifier
PEMB	PEM: Palustrine Emergent	B: Saturated	--
PEMY; PEMYd	PEM: Palustrine Emergent	Y: Saturated/Semi-permanent/ Seasonally Flooded	d: Partially Drained/Ditched
PFO1A	PFO: Palustrine Forested; Broad-leaved Deciduous	A: Temporarily Flooded	--
PFO1Y	PFO: Palustrine Forested; Broad-leaved Deciduous	Y: Saturated/Semi-permanent/ Seasonally Flooded	--
PSS1Y	PSS: Palustrine Scrub-shrub; Broad-leaved Deciduous	Y: Saturated/Semi-permanent/ Seasonally Flooded	--