

September 10, 2014

Tony Leavitt  
City of Kirkland  
Planning and Community Development  
123 Fifth Avenue  
Kirkland, WA 98033

## **Re: Thornquist Property (Chandler Homes), Wetland and Stream Delineation Report**

The Watershed Company Reference Number: 140622.7

Dear Tony:

On August 28, 2014, Ecologist Nell Lund, PWS and Katy Crandall visited the property located at 7845 NE 122<sup>nd</sup> Street in Kirkland (Parcel #6076500421). The purpose of the visit was to conduct a wetland and stream delineation review/study. This letter summarizes the findings of this study and details applicable federal, state, and local regulations. The following attachments are included:

- Delineation Sketch
- Wetland Data Sheets
- Kirkland Rating Form
- Ecology Rating Form

### **Methods**

Public-domain information for the subject property was reviewed prior to the fieldwork. These sources include USDA Natural Resources Conservation Service Soil maps, U.S. Fish and Wildlife Service National Wetland Inventory maps, Washington Department of Fish and Wildlife interactive mapping programs (PHS on the Web and SalmonScope), Washington State Department of Natural Resources Forest Practices Activity Mapping Tool (FPARS), City of Kirkland GIS Maps, King County's GIS mapping website (iMAP), and Kirkland's Streams, Wetlands, and Wildlife Study (The Watershed Company 1998).

The study area was evaluated for wetlands using methodology from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region Version 2.0* (Regional Supplement) (US Army Corps of Engineers [Corps] May 2010). The wetland boundary was determined on the basis of an examination of vegetation, soils, and hydrology. Areas meeting the criteria set forth in

the Regional Supplement were determined to be wetland. Soil, vegetation, and hydrologic parameters were sampled at several locations along the wetland boundary to make the determination. Data points on-site are marked with yellow- and black-striped flags. Data were recorded at two of these locations.

Delineated wetlands were classified using the *City of Kirkland Wetland Field Data Form* (Kirkland Rating System) and the *Western Washington Wetland Rating System* (Ecology, Aug 2004, version 2) (Ecology Rating System). Wetland A is marked with 8 pink- and black-striped flags.

The ordinary high water mark (OHWM) of Champagne Creek was reviewed and determined based on the definition provided by the Washington Department of Fish and Wildlife and WAC 220-110-020(69). The OHWM is located by examining the bed and bank physical characteristics and vegetation to ascertain the water elevation for mean annual floods. Field observations and online maps were used to classify streams according to Chapter 90 of the Kirkland Zoning Code (KZC).

All fieldwork for this project was conducted on the subject property and public roadways; entry to adjacent private properties was not attempted.

## **Findings**

The subject parcel is located in the Finn Hill neighborhood in the City of Kirkland, in the Champagne Creek Drainage Basin – a primary basin. The property is developed and contains a single family residence, detached garage/storage area, shed, gravel driveway and parking area, vegetated riparian corridor, and lawn areas. Upland riparian vegetation consists of western red cedar, red alder, and bigleaf maple in the canopy with Indian plum, salmonberry, English holly, sword fern, and English ivy common in the understory. One stream (Champagne Creek) and one wetland were delineated, and a nearby off-site wetland was rated; they are described below.

### *Wetland A*

Wetland A is located on the west side of the subject property. It is a relatively small riverine wetland with a scrub-shrub Cowardin vegetation community dominated by Himalayan blackberry, reed canarygrass, giant horsetail and bindweed. Soils are a dark (10 YR 2/2) sandy loam with redoximorphic concentrations located in the top nine inches. It meets hydric soil indicator Redox Dark Surface (F6). Soils were saturated at five inches and a water table was present at ten inches below the ground surface. The primary hydrologic source is overbank flooding from Champagne Creek.

*Wetland B*

Wetland B is a riverine wetland located off-site, southwest of the subject property. It contains forested and emergent Cowardin vegetation communities. Common vegetation includes a blue spruce in the canopy with Himalayan blackberry, reed canarygrass, small-fruited bulrush, and giant horsetail common in the understory. Wetland B is also hydrologically supported by Champagne Creek.

*Champagne Creek*

Champagne Creek is a permanently-flowing drainage that flows west-southwest through the subject property. It enters the property via an open channel from the northeast. Champagne Creek appears to originate in a steep ravine approximately 1,000 feet northeast of the subject property. South of the property, Champagne Creek flows under Juanita Drive NE into Juanita Triangle Park. From there, the stream generally flows south until it reaches Lake Washington. Downstream portions of Champagne Creek likely support salmonid fish species. The presence of cutthroat trout was documented in Kirkland's Streams, Wetlands, and Wildlife Study (The Watershed Company 1998). A relatively steep section of Champagne Creek exists below the subject property. Using the City's interactive mapping program, this gradient was calculated to be approximately 20 percent which is considered a barrier to fish migration. Salmonids are not expected in Champagne Creek through the study area due to the downstream gradient barrier.

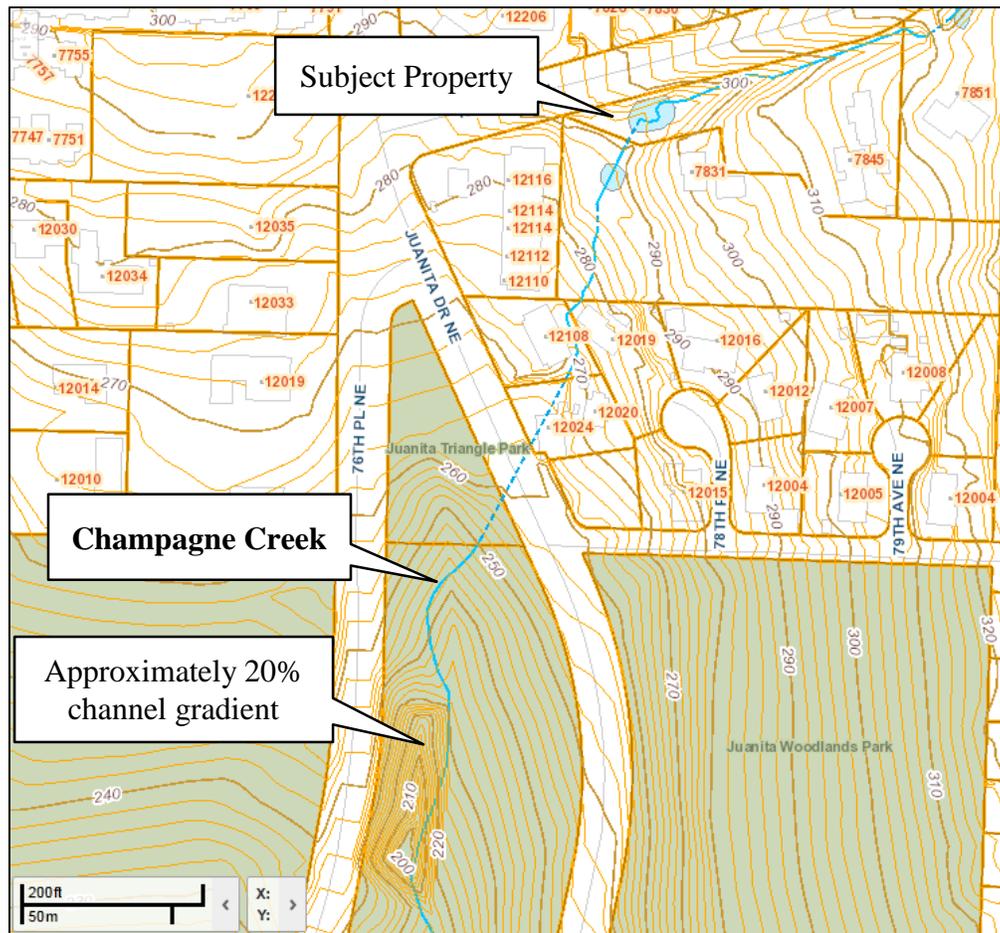


Figure 1. Topographic map of Champagne Creek downstream from the study area showing the increased channel gradient.

### Local Regulations

Streams and wetlands in Kirkland are regulated under Chapter 90 of the Kirkland Zoning Code (KZC).

Under KZC, wetlands are classified as one of three types based on the Kirkland Rating System. According to the Kirkland Rating System, Wetlands A and B do not satisfy any of the criteria specific to Type 1 wetlands. Based on the functional scoring, Wetland A received a total of 13 points, and Wetland B received a total of 21 points. These scores qualify both Wetlands A and B as Type 3 wetlands.

For thoroughness, the wetlands were also rated using the 2004 Ecology Rating System, Wetland A scores 24 points for hydrology, 18 points for water quality, 12 points for habitat, and 54 points overall. Wetland B scores 20 points for hydrology, 18 points for water quality, 14 points for habitat, and 52 points overall. These scores qualify Wetlands

A and B as Category II wetlands using Ecology's Rating System. Note that a 2014 substantially revised version of the rating system was initially released by Ecology and subsequently withdrawn due to typographical errors.

Wetland buffers in Kirkland are determined based on the wetland type (Kirkland Rating System) and whether the encompassing drainage basin is a primary or secondary basin. The standard buffer for Type 3 wetlands located in a primary basin is 50 feet (KZC 90.45.1).

Streams in Kirkland are classified as one of three classes based on duration of flow and the presence of salmonid fish species. As a perennial stream, that does not contain salmonid fish species, Stream A is classified as a Class B stream (KZC.90.30.6). Stream buffers in Kirkland are determined based on the stream class and the status of the encompassing drainage basin. Class B streams in a primary basin are required to have a standard buffer width of 60 feet as measured from the OHWM (KZC.90.90.1).

The City of Kirkland requires a structure setback of 10 feet from the edge of wetland and stream buffers.

### **State and Federal Regulations**

Wetlands and streams are also regulated by the U.S. Army Corps of Engineers (Corps) under section 404 of the Clean Water Act. Any filling of Waters of the State would require notification and permits from the Corps. Federally permitted actions that could affect endangered species (i.e. salmon or bull trout) may also require a biological assessment study and consultation with the U.S. Fish and Wildlife Service and/or the National Marine Fisheries Service. Application for Corps permits may also require an individual 401 Water Quality Certification and Coastal Zone Management Consistency determination from Ecology.

In general, neither the Corps nor Ecology regulates buffers, unless direct impacts are proposed. When direct impacts are proposed, mitigated wetlands may be required to employ buffers based on Corps and Ecology joint regulatory guidance.

### **Disclaimer**

The information contained in this letter or report is based on the application of technical guidelines currently accepted as the best available science and in conjunction with the manuals and criteria outlined in the methods section. All discussions, conclusions and recommendations reflect the best professional judgment of the author(s) and are based upon information available to us at the time the study was conducted. All work was completed within the constraints of budget, scope, and timing. The findings of this

report are subject to verification and agreement by the appropriate local, State and Federal regulatory authorities. No other warranty, expressed or implied, is made.

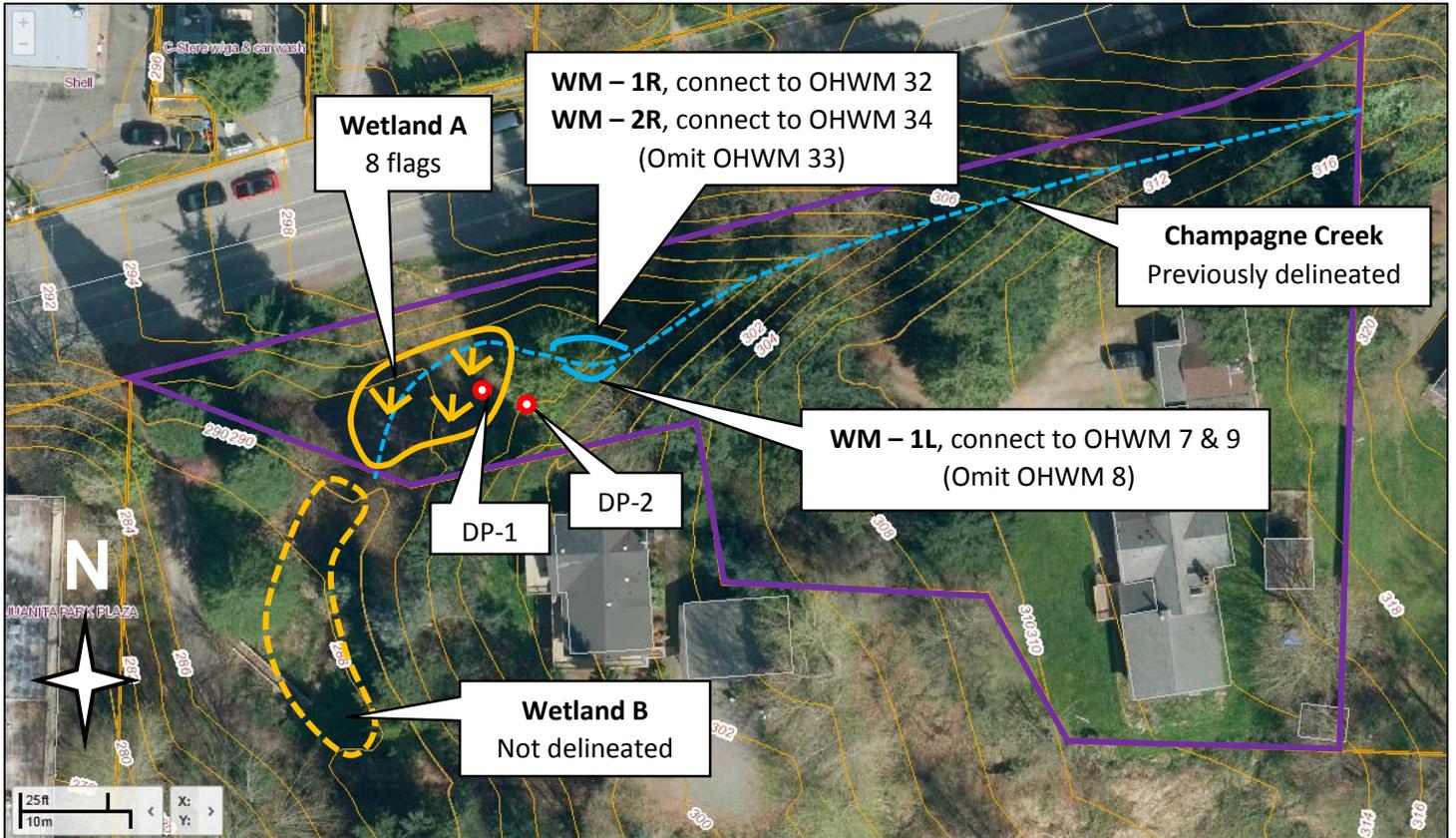
Please call if you have any questions or if we can provide you with any additional information.

Sincerely,

A handwritten signature in black ink that reads "Katy Crandall". The signature is written in a cursive, flowing style.

Katy Crandall, WPIT  
Ecologist

Enclosures



**Thornquist Property, Wetland and Stream Delineation**

Prepared for: Tony Leavitt, City of Kirkland  
Parcel Number: 6076500421  
7845 Ne 122<sup>nd</sup> Place  
Kirkland, WA 98033

Delineation date: August 28, 2014  
TWC Ref. No. 140622.7

**Note:** This is a field sketch. Wetland areas not surveyed.  
Areas depicted are *approximate* and not to scale.

Wetland Flags: pink- and black-striped  
**Old** Stream Flags: blue- and white- striped  
**New** Stream Flags: blue- and white- striped  
w/ yellow- and black- striped  
DP Flags: yellow- and black-striped

**LEGEND:**

-  Delineated Wetland Edge
-  Not Delineated
-  Wetland Area
-  Previously Delineated Stream flags (already surveyed)
-  New Stream Flags (not surveyed)
-  Data Point (DP)
-  Subject Property

**DP- 1**

Project Site: <b>Thornquist Property</b>		Sampling Date: <b>08/28/2014</b>
Applicant/Owner: <b>Thornquist</b>		Sampling Point: <b>DP- 1</b>
Investigator: <b>N. Lund, K. Crandall</b>		City/County: <b>Kirkland</b>
Sect., Township, Range: <b>S 25 T 26N R 04E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>Hillslope</b>	Slope (%): <b>&lt;5</b>	Local relief (concave, convex, none): <b>Concave</b>
Subregion (LRR): <b>A</b>	Lat: _____	Long: _____ Datum: _____
Soil Map Unit Name: <b>AgC – Alderwood gravelly sandy loam</b>	NW1 classification: <b>NA</b>	
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		
(If needed, explain any answers in Remarks.)		

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soils Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>2</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>3</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>67</b> (A/B)																					
Sapling/Shrub Stratum (Plot size 3m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover				Prevalence Index = B / A =																					
Herb Stratum (Plot size 1m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators																					
1. <b><i>Athyrium filix-femina</i></b>	<b>30</b>	<b>Y</b>	<b>FAC</b>	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td><b>X</b></td> <td>Dominance test is &gt; 50%</td> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table>	<b>X</b>	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)											
<b>X</b>	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
2. <b><i>Epilobium ciliatum</i></b>	<b>10</b>	<b>Y</b>	<b>FACW</b>																						
3. <b><i>Ranunculus repens</i></b>	<b>5</b>	<b>N</b>	<b>FAC</b>																						
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
Woody Vine Stratum (Plot size )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1. <b><i>Rubus armeniacus</i></b>	<b>85</b>	<b>Y</b>	<b>FACU</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2. <b><i>Solanum dulcamara</i></b>	<b>10</b>	<b>N</b>	<b>FAC</b>																						
_____ = Total Cover																									
% Bare Ground in Herb Stratum																									
Remarks:																									

**SOIL**

**Sampling Point – DP- 1**

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10 YR 2/2	90	10 YR 3/6	10	C	M	Sandy loam	
9-14	2.5 Y 3/1	100					Loamy sand with gravel	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains    <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                            |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA 1)</b> |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                        |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                            |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input checked="" type="checkbox"/> Redox Dark Surface (F6)              |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                      |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                          |

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- |   |
|---|
| <input type="checkbox"/> 2cm Muck (A10)             |
| <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Other (explain in remarks) |
| <input type="checkbox"/>                            |

<sup>3</sup> 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):*

- |  |   |
|--|---|
| <input type="checkbox"/> Surface water (A1)                        | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)                          |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Water-Stained Leaves <b>(except MLRA 1, 2, 4A &amp; 4B)</b> (B9) |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Salt Crust (B11)   |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                                      |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                                       |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                    |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                                    |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                       |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>                   |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (explain in remarks)                                       |

*Secondary Indicators (2 or more required):*

- |  |
|--|
| <input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A &amp; 4B)</b> |
| <input type="checkbox"/> Drainage Patterns (B10)                                   |
| <input type="checkbox"/> Dry-Season Water Table (C2)                               |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                 |
| <input type="checkbox"/> Geomorphic Position (D2)                                  |
| <input type="checkbox"/> Shallow Aquitard (D3)                                     |
| <input type="checkbox"/> FAC-Neutral Test (D5)                                     |
| <input type="checkbox"/> Raised Ant Mounds (D6) <b>(LRR A)</b>                     |
| <input type="checkbox"/> Frost-Heave Hummocks                                      |

**Field Observations**

- |  |   |  |                       |
|--|---|--|-----------------------|
| Surface Water Present?                             | <input type="checkbox"/> Yes            | <input checked="" type="checkbox"/> No | Depth (in):           |
| Water Table Present?                               | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Depth (in): <b>10</b> |
| Saturation Present?<br>(includes capillary fringe) | <input checked="" type="checkbox"/> Yes | <input type="checkbox"/> No            | Depth (in): <b>5</b>  |

Wetland Hydrology Present?

Yes

No

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

Remarks:

**DP- 2**

Project Site: <b>Thornquist Property</b>		Sampling Date: <b>08/28/2014</b>
Applicant/Owner: <b>Thornquist</b>		Sampling Point: <b>DP- 2</b>
Investigator: <b>N. Lund, K. Crandall</b>		City/County: <b>Kirkland</b>
Sect., Township, Range: <b>S 25 T 26N R 04E</b>		State: <b>WA</b>
Landform (hillslope, terrace, etc): <b>Hillslope</b>	Slope (%): <b>~8</b>	Local relief (concave, convex, none): <b>Convex</b>
Subregion (LRR): <b>A</b>	Lat:	Long:
Soil Map Unit Name: <b>AgC – Alderwood gravelly sandy loam</b>		Datum:
Are climatic/hydrologic conditions on the site typical for this time of year? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		(If no, explain in remarks.)
Are "Normal Circumstances" present on the site? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> significantly disturbed?		
Are Vegetation <input type="checkbox"/> , Soil, <input type="checkbox"/> , or Hydrology <input type="checkbox"/> naturally problematic?		
		(If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is this Sampling Point within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soils Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks:	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size 5m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet																					
1.				Number of Dominant Species that are OBL, FACW, or FAC: <b>2</b> (A)																					
2.																									
3.																									
4.																									
_____ = Total Cover				Total Number of Dominant Species Across All Strata: <b>3</b> (B)																					
				Percent of Dominant Species that are OBL, FACW, or FAC: <b>67</b> (A/B)																					
Sapling/Shrub Stratum (Plot size 3m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index Worksheet																					
1.				<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <th colspan="2">Total % Cover of</th> <th>Multiply by</th> </tr> <tr> <td>OBL species</td> <td></td> <td>x 1 =</td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> </tr> <tr> <td>Column totals</td> <td>(A)</td> <td>(B)</td> </tr> </table>	Total % Cover of		Multiply by	OBL species		x 1 =	FACW species		x 2 =	FAC species		x 3 =	FACU species		x 4 =	UPL species		x 5 =	Column totals	(A)	(B)
Total % Cover of		Multiply by																							
OBL species		x 1 =																							
FACW species		x 2 =																							
FAC species		x 3 =																							
FACU species		x 4 =																							
UPL species		x 5 =																							
Column totals	(A)	(B)																							
2.																									
3.																									
4.																									
5.																									
_____ = Total Cover				Prevalence Index = B / A =																					
Herb Stratum (Plot size 1m diam. )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators																					
1. <i>Equisetum telmateia</i>	<b>50</b>	<b>Y</b>	<b>FACW</b>	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td><b>X</b></td> <td>Dominance test is &gt; 50%</td> </tr> <tr> <td></td> <td>Prevalence test is ≤ 3.0 *</td> </tr> <tr> <td></td> <td>Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)</td> </tr> <tr> <td></td> <td>Wetland Non-Vascular Plants *</td> </tr> <tr> <td></td> <td>Problematic Hydrophytic Vegetation * (explain)</td> </tr> </table>	<b>X</b>	Dominance test is > 50%		Prevalence test is ≤ 3.0 *		Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)		Wetland Non-Vascular Plants *		Problematic Hydrophytic Vegetation * (explain)											
<b>X</b>	Dominance test is > 50%																								
	Prevalence test is ≤ 3.0 *																								
	Morphological Adaptations * (provide supporting data in remarks or on a separate sheet)																								
	Wetland Non-Vascular Plants *																								
	Problematic Hydrophytic Vegetation * (explain)																								
2. <i>Phalaris arundinacea</i>	<b>50</b>	<b>Y</b>	<b>FACW</b>																						
3.																									
4.																									
5.																									
6.																									
7.																									
8.																									
9.																									
10.																									
11.																									
_____ = Total Cover				* Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic																					
Woody Vine Stratum (Plot size )	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																					
1. <i>Rubus armeniacus</i>	<b>45</b>	<b>Y</b>	<b>FACU</b>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>																					
2.																									
_____ = Total Cover																									
% Bare Ground in Herb Stratum Remarks:																									

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-12	10 YR 3/3	100					Sandy loam with gravel	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains      <sup>2</sup>Loc: PL=Pore Lining, M=Matrix

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                         |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                     |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                 |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                     |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)               |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                   |

**Indicators for Problematic Hydric Soils<sup>3</sup>**

- 2cm Muck (A10)
- Red Parent Material (TF2)
- Other (explain in remarks)

<sup>3</sup> 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):*

- |  |  |
|--|--|
| <input type="checkbox"/> Surface water (A1)                        | <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Water-Stained Leaves (except MLRA 1, 2, 4A & 4B) (B9) |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Salt Crust (B11)                                      |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                           |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                            |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)         |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                         |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)            |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)               |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (explain in remarks)                            |

*Secondary Indicators (2 or more required):*

- Water-Stained Leaves (B9) (MLRA 1, 2, 4A & 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

**Field Observations**

Surface Water Present?     Yes     No    Depth (in): \_\_\_\_\_  
 Water Table Present?     Yes     No    Depth (in): \_\_\_\_\_  
 Saturation Present?       Yes     No    Depth (in): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present?      Yes       No

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

Remarks:      **Slightly moist, not saturated.**

**WETLAND FIELD DATA FORM – Thornquist property located at  
7845 NE 122<sup>nd</sup> Place, Kirkland, WA 98033.**

Rating done on August 28, 2014 by The Watershed Company.



WETLAND FIELD DATA FORM

**Wetland A**

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington;
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or
- e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

**1. Total wetland area**

Estimate wetland area and score from choices Acres	Point Value	<u>Points</u>
>20.00	= 6	
10-19.99	= 5	
5-9.99	= 4	
1-4.99	= 3	
0.1-0.99	= 2	
<0.1	= 1	

(1 point)

**2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.**

	# of Classes	Points
<b>Open Water:</b> if the area of open water is >1/3 acre or >10% of the total wetland area	1	= 1
<b>Aquatic Beds:</b> if the area of aquatic beds is >10% of the <b>open water</b> area <b>or</b> >1/2 acre	2	= 3
<b>Emergent:</b> if the area of emergent class is >1/2 acre <b>or</b> >10% of the total wetland area	3	= 5
<b>Scrub-Shrub:</b> if the area of scrub-shrub class is >1/2 acre <b>or</b> >10% of the total wetland area	4	= 7
<b>Forested:</b> if the area of forested class is >1/2 acre or >10% of the total wetland area	5	= 10

**(1 point)**

**3. Plant species diversity.**

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	Point Value	Class	# of Species	Point Value
Aquatic Bed	1-2	= 1	Scrub-Shrub	1-2	= 1
	3	= 2		3-4	= 2
	>3	= 3		>4	= 3
Emergent	1-2	= 1	Forested	1-2	= 1
	3-4	= 2		3-4	= 2
	>4	= 3		>4	= 3

**(3 points)**

**4. Structural diversity.**

If the wetland has a forested class, add 1 point for each of the following attributes present:

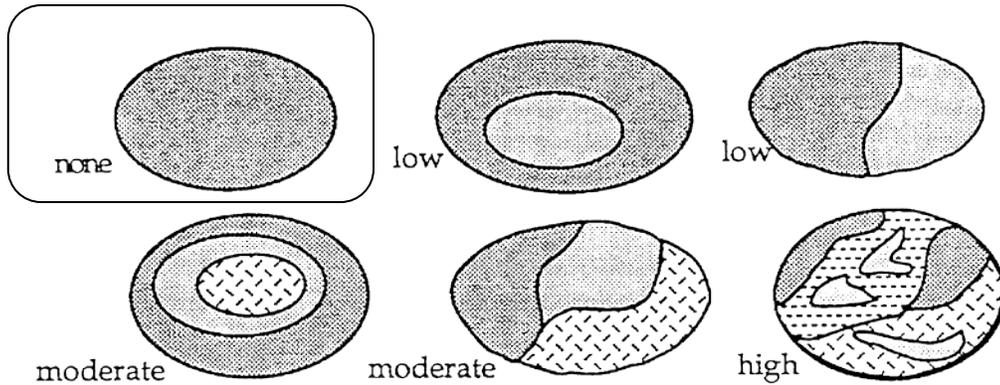
- Trees >50' tall = 1
- Trees 20' to 49' tall = 1
- shrubs = 1
- Herbaceous ground cover = 1

**(0 points)**

**5. Interspersion between wetland classes.**

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1 = Low
- 0 = None



**(0 points)**

**6. Habitat features**

Add points associated with each habitat feature listed:

- Is there evidence of current use by beavers? = 3
- Is a heron rookery located within 300'? = 2
- Are raptor nest(s) located within 300'? = 1
- Are there at least 2 standing dead trees (snags) per acre? = 1
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = 1

**(0 points)**

**7. Connection to streams**

Is the wetland connected at any time of the year via surface water? **(score one answer only)**

Is the wetland connected at any time of the year via surface water?

- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = 3
- Is not connected to any stream = 0

**(5 points)**

**8. Buffers**

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	<u>75</u> %	X 0 = <u>0</u>	<u>        </u> =	<u>        </u>
Lawn, grazed pasture, vineyards or annual crops	<u>        </u> %	X 1 = <u>        </u>	<u>        </u> =	<u>        </u>
Ungrazed grassland or orchards	<u>        </u> %	X 2 = <u>        </u>	<u>        </u> =	<u>        </u>
Open water or native grasslands	<u>        </u> %	X 3 = <u>        </u>	<u>        </u> =	<u>        </u>
Forest or shrub	<u>25</u> %	X 4 = <u>100</u>	<u>2</u> =	<u>200</u>
			Add buffer total	<u>200</u>

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3

300-599 = 2

100-299 = 1

**(1 points)**

**9. Connection to other habitat areas:**

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

**(1 points).**

**10. Scoring**

Add the scores to get a total:   12  

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

No = Type 3

**WETLAND FIELD DATA FORM – Thornquist property located at  
7845 NE 122<sup>nd</sup> Place, Kirkland, WA 98033.**

Rating done on August 28, 2014 by The Watershed Company.



WETLAND FIELD DATA FORM

**Wetland B**

BEGIN BY CHECKING ANY OF THE FOLLOWING (a. – e.) THAT APPLY:

- a. The wetland is contiguous to Lake Washington;
- b. The wetland contains at least 1/4 acre of organic soils, such as peat bogs or mucky soils;
- c. The wetland is equal to or greater than 10 acres in size and having three or more wetland classes, as defined by the U.S. Fish & Wildlife Service (Cowardin et al., 1979), one of which is open water;
- d. The wetland has significant habitat value to state or federally listed threatened or endangered wildlife species; or
- e. The wetland contains state or federally listed threatened or endangered plant species.

IF ANY OF THE CRITERIA LISTED ABOVE ARE MET, THEN THE WETLAND IS CONSIDERED TO BE TYPE 1. IF THAT IS THE CASE, PLEASE CONTINUE TO COMPLETE THE ENTIRE FORM, BUT DO NOT ASSIGN POINTS.

IF THE WETLAND DOES NOT MEET THE CRITERIA LISTED ABOVE FOR TYPE 1, COMPLETE THE ENTIRE FORM, USING THE ASSIGNED POINTS TO DETERMINE IF IT IS A TYPE 2 OR TYPE 3 WETLAND.

Type 2 wetlands typically have at least two wetland vegetation classes, are at least partially surrounded by buffers of native vegetation, connected by surface water flow (perennial or intermittent) to other wetlands or streams, and contain or are associated with forested habitat.

**1. Total wetland area**

Estimate wetland area and score from choices Acres	Point Value	<u>Points</u>
>20.00	= 6	
10-19.99	= 5	
5-9.99	= 4	
1-4.99	= 3	
0.1-0.99	= 2	
<0.1	= 1	

(1 point)

**2. Wetland classes: Determine the number of wetland classes that qualify, and score according to the table.**

	# of Classes	Points
<b>Open Water:</b> if the area of open water is >1/3 acre or >10% of the total wetland area	1	= 1
<b>Aquatic Beds:</b> if the area of aquatic beds is >10% of the <b>open water</b> area <b>or</b> >1/2 acre	2	= 3
<b>Emergent:</b> if the area of emergent class is >1/2 acre <b>or</b> >10% of the total wetland area	3	= 5
<b>Scrub-Shrub:</b> if the area of scrub-shrub class is >1/2 acre <b>or</b> >10% of the total wetland area	4	= 7
<b>Forested:</b> if the area of forested class is >1/2 acre or >10% of the total wetland area	5	= 10

**(3 point)**

**3. Plant species diversity.**

For all wetland classes which qualified in 2 above, count the number of different plant species and score according to the table below. You do not have to name them.

e.g., if a wetland has an aquatic bed class with 3 species, and emergent class with 4 species and a scrub-shrub class with 2 species, you would circle 2, 2, and 1 in the second column (below).

Class	# of Species	Point Value	Class	# of Species	Point Value
Aquatic Bed	1-2	= 1	Scrub-Shrub	1-2	= 1
	3	= 2		3-4	= 2
	>3	= 3		>4	= 3
Emergent	1-2	= 1	Forested	1-2	= 1
	3-4	= 2		3-4	= 2
	>4	= 3		>4	= 3

**(6 points)**

**4. Structural diversity.**

If the wetland has a forested class, add 1 point for each of the following attributes present:

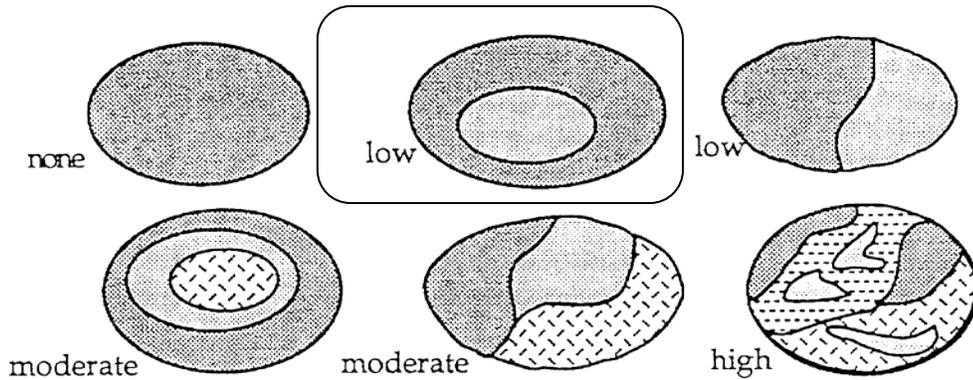
Trees >50' tall	= 1
Trees 20' to 49' tall	= 1
shrubs	= 1
Herbaceous ground cover	= 1

**(2 points)**

**5. Interspersion between wetland classes.**

Decide from the diagrams below whether interspection between wetland classes is high, moderate, low or none

- 3 = High
- 2 = Moderate
- 1 = Low
- 0 = None



**(1 points)**

**6. Habitat features**

Add points associated with each habitat feature listed:

- Is there evidence of current use by beavers? = 3
- Is a heron rookery located within 300'? = 2
- Are raptor nest(s) located within 300'? = 1
- Are there at least 2 standing dead trees (snags) per acre? = 1
- Are there any other perches (wires, poles, or posts)? = 1
- Are there at least 3 downed logs per acre? = 1

**(0 points)**

**7. Connection to streams**

Is the wetland connected at any time of the year via surface water? **(score one answer only)**

Is the wetland connected at any time of the year via surface water?

- To a perennial stream or a seasonal stream *with* fish = 5
- To a seasonal stream *without* fish = 3
- Is not connected to any stream = 0

**(5 points)**

**8. Buffers**

Step 1: Estimate (to the nearest 5%) the percentage of each buffer or land-use type (below) that adjoins the wetland boundary. Then multiply these percentages by the factor(s) below and enter result in the column to the right.

	% of Buffer	Step 1	Width Factor	Step 2
Roads, buildings or parking lots	<u>40</u> %	X 0 = <u>0</u>	<u>        </u> =	<u>        </u>
Lawn, grazed pasture, vineyards or annual crops	<u>        </u> %	X 1 = <u>        </u>	<u>        </u> =	<u>        </u>
Ungrazed grassland or orchards	<u>        </u> %	X 2 = <u>        </u>	<u>        </u> =	<u>        </u>
Open water or native grasslands	<u>        </u> %	X 3 = <u>        </u>	<u>        </u> =	<u>        </u>
Forest or shrub	<u>60</u> %	X 4 = <u>240</u>	<u>1</u> =	<u>200</u>
			Add buffer total	<u>200</u>

Step 2: Multiply result(s) of step 1:

By 1 if buffer width is 25-50'

By 2 if buffer width is 50-100'

By 3 if buffer width is >100'

Enter results and add subscores

Step 3: Score points according to the following table:

Buffer Total

900-1200 = 4

600-899 = 3

300-599 = 2

100-299 = 1

**(1 points)**

**9. Connection to other habitat areas:**

Is there a riparian corridor to other wetlands within 0.25 of a mile, or a corridor >100' wide with good forest or shrub cover to any other habitat area? = 5

Is there a narrow corridor <100' wide with good cover or a wide corridor >100' wide with low cover to any other habitat area? = 3

Is there a narrow corridor <100' wide with low cover or a significant habitat area within 0.25 mile but no corridor? = 1

Is the wetland and buffer completely isolated by development and/or cultivated agricultural land? = 0

**(1 points).**

**10. Scoring**

Add the scores to get a total: 20

Question: Is the total greater than or equal to 22 points?

Answer:

Yes = Type 2

No = Type 3

Wetland name or number   A  

**WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known):   Thornquist Property – Wetland A   Date of site visit:   08/28/2014  

N. Lund,

Rated by:   K. Crandall   Trained by Ecology? Yes  No  Date of Training   10/2008  

SEC:   25   TOWNSHIP:   26N   RANGE:   04E   Is S/T/R in Appendix D? Yes  No

**SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I  II  III  IV

Category I = Score >70
Category II = Score 51-69
Category III = Score 30-50
Category IV = Score < 30

Score for Water Quality Functions	24
Score for Hydrologic Functions	18
Score for Habitat Functions	12
<b>TOTAL score for functions</b>	<b>54</b>

**Category based on SPECIAL CHARACTERISTICS of wetland**

I  II  Does not Apply

**Final Category (choose the “highest” category from above)**

<b>II</b>
-----------

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	X
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	<input type="checkbox"/>

Wetland name or number \_\_\_A\_\_\_

**Does the wetland unit being rated meet any of the criteria below?**

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.		X*
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X*
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X*
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

**\*The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web (<http://wdfw.wa.gov/mapping/phs/>).**

*To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.*

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

## Classification of Wetland Units in Western Washington

**If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in Questions 1-7 apply, and go to Question 8.**

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?  
  **NO** – go to 2                        **YES** – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe**   **NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. ).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

**NO** – go to 3                        **YES** – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

**NO** – go to 4                        **YES** – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

The wetland is on a slope (*slope can be very gradual*),

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded**?

*NOTE: Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*

**NO** – go to 5                        **YES** – The wetland class is **Slope**

Wetland name or number \_\_\_A\_\_\_\_\_

5. Does the entire wetland unit **meet all** of the following criteria?

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

The overbank flooding occurs at least once every two years

*NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.*

NO - go to 6

YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

<i>HGM classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number \_\_\_A\_\_\_

<b>R</b>	<b>Riverine and Freshwater Tidal Fringe Wetlands</b>	<b>Points</b>
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		
<b>R</b>	<b>R 1. Does the wetland have the <u>potential</u> to improve water quality?</b>	<i>(see p. 52)</i>
<b>R</b>	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland ..... points = 8 Depressions cover > 1/2 area of wetland ..... points = 4 Depressions present but cover < 1/2 area of wetland ..... points = 2 No depressions present ..... points = 0	4
<b>R</b>	R 1.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland ..... points = 8 Forest or shrub > 1/3 area of the wetland ..... points = 6 Ungrazed, emergent plants > 2/3 area of wetland ..... points = 6 Ungrazed emergent plants > 1/3 area of wetland ..... points = 3 Forest, shrub, and ungrazed emergent < 1/3 area of wetland ..... points = 0	8
<b>R</b>	<b>Total for R 1</b> <span style="float: right;"><i>Add the points in the boxes above</i></span>	12
<b>R</b>	<b>R 2. Does the wetland have the <u>opportunity</u> to improve water quality? <i>(see p. 53)</i></b> Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? <i>Note which of the following conditions provide the sources of pollutants.</i> <input type="checkbox"/> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input checked="" type="checkbox"/> <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input checked="" type="checkbox"/> <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> <input type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> <input type="checkbox"/> The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality <input type="checkbox"/> <input type="checkbox"/> Other _____ <b>YES</b> multiplier is 2 <b>NO</b> multiplier is 1	multiplier <u>2</u>
<b>R</b>	<b>TOTAL - Water Quality Functions</b> Multiply the score from R 1 by R 2 <i>Add score to table on p. 1</i>	24

**Comments**

<b>R Riverine and Freshwater Tidal Fringe Wetlands</b>		
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion</b>		
	<b>R 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?</b>	<i>(see p. 54)</i>
<b>R</b>	<p>R 3.1 Characteristics of the overbank storage the wetland provides:  <i>Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (width of wetland)/(width of stream).</i>                      If the ratio is more than 20..... points = 9                      If the ratio is between 10 – 20..... points = 6                      If the ratio is 5- &lt;10 ..... points = 4                      If the ratio is 1- &lt;5 ..... points = 2                      If the ratio is &lt; 1..... points = 1</p>	2
<b>R</b>	<p>R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat large woody debris as “forest or shrub”.</i> Choose the points appropriate for the best description.                      Forest or shrub for &gt;1/3 area OR Emergent plants &gt; 2/3 area ..... points = 7                      Forest or shrub for &gt; 1/10 area OR Emergent plants &gt; 1/3 area ..... points = 4                      Vegetation does not meet above criteria..... points = 0</p>	7
<b>R</b>	<b>Total for R 3</b> <i>Add the points in the boxes above</i>	<b>9</b>
<b>R</b>	<p><b>R 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? <i>(see p. 57)</i></b>                      Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. <i>Note which of the following conditions apply.</i>  <input checked="" type="checkbox"/> <input type="checkbox"/> There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding.  <input checked="" type="checkbox"/> <input type="checkbox"/> There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding  <input type="checkbox"/> <input type="checkbox"/> Other _____  <i>(Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)</i>  <b>YES multiplier is 2      NO multiplier is 1</b></p>	multiplier <u>2</u>
<b>R</b>	<b>TOTAL - Hydrologic Functions</b> Multiply the score from R 3 by R 4 <i>Add score to table on p. 1</i>	<b>18</b>

<b>These questions apply to wetlands of all HGM classes.</b> <b>HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat</b>	
<b>H 1. Does the wetland have the potential to provide habitat for many species?</b>	
<p>H 1.1 <u>Vegetation structure</u> (see p. 72)            Check the types of vegetation classes present (as defined by Cowardin) if the class is ¼ acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.</p> <p> <input type="checkbox"/> <input type="checkbox"/> Aquatic bed  <input type="checkbox"/> <input type="checkbox"/> Emergent plants  <input checked="" type="checkbox"/> <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input type="checkbox"/> <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)  <input type="checkbox"/> <input type="checkbox"/> Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon         </p> <p>Add the number of vegetation types that qualify. If you have:</p> <p style="text-align: right;">           4 structures or more ..... points = 4            3 structures ..... points = 2            2 structures ..... points = 1            1 structure ..... points = 0         </p>	0
<p>H 1.2. <u>Hydroperiods</u> (see p. 73)            Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> <input type="checkbox"/> Permanently flooded or inundated                      4 or more types present ..... points = 3  <input checked="" type="checkbox"/> <input type="checkbox"/> Seasonally flooded or inundated                      3 types present ..... points = 2  <input type="checkbox"/> <input type="checkbox"/> Occasionally flooded or inundated                      2 types present ..... points = 1  <input type="checkbox"/> <input type="checkbox"/> Saturated only    1 types present ..... points = 0  <input checked="" type="checkbox"/> <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland  <input type="checkbox"/> <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland  <input type="checkbox"/> <input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>  <input type="checkbox"/> <input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b> </p>	1
<p>H 1.3. <u>Richness of Plant Species</u> (see p. 75)            Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be combined to meet the size threshold)            You do not have to name the species.            Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</p> <p style="text-align: right;">           If you counted:                      &gt; 19 species ..... points = 2                5 - 19 species ..... points = 1                &lt; 5 species ..... points = 0         </p> <p>List species below if you want to:</p>	1

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b> Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>None = 0 points    Low = 1 point    Moderate = 2 points    High = 3 points</p> <p>[riparian braided channels]</p> <p>NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".</p>	1
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b> Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input type="checkbox"/> <input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input checked="" type="checkbox"/> <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)</li> <li><input type="checkbox"/> <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present</li> <li><input type="checkbox"/> <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (<i>structures for egg-laying by amphibians</i>)</li> <li><input type="checkbox"/> <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p><i>Note: The 20% stated in early printings of the manual on page 78 is an error.</i></p>	1
<p><b>H 1. TOTAL</b> Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	4

<b>H 2. Does the wetland have the opportunity to provide habitat for many species?</b>	
<p><b>H 2.1 Buffers</b> (<i>see p. 80</i>)  <i>Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 100 m            (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference.            No developed areas within undisturbed part of buffer.            (relatively undisturbed also means no-grazing) ..... Points = 5</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 100 m (330 ft)            of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference..... Points = 4</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 50 m            (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference..... Points = 4</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 100 m            (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circumference..... Points = 3</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 50 m            (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference..... Points = 3</p> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <p><input type="checkbox"/> <input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> <input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> <input type="checkbox"/> Heavy grazing in buffer..... Points = 1</p> <p><input type="checkbox"/> <input type="checkbox"/> Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland ..... Points = 0</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p>	1
<p><b>H 2.2 Corridors and Connections</b> (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="text-align: center;">YES = <b>4 points</b> (<i>go to H 2.3</i>)      NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? <b>OR a Lake-fringe wetland</b>, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = <b>2 points</b> (<i>go to H 2.3</i>)      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 40px;">within 5 mi (8km) of a brackish or salt water estuary OR            within 3 mi of a large field or pasture (&gt;40 acres) OR            within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = <b>1 point</b>      NO = <b>0 points</b></p>	1

<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <a href="http://wdfw.wa.gov/hab/phslist.htm">http://wdfw.wa.gov/hab/phslist.htm</a>)</u></p> <p>Which of the following priority habitats are within 330ft (100m) of the wetland? (NOTE: the connections do not have to be relatively undisturbed)</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Aspen Stands:</b> Pure or mixed stands of aspen greater than 0.4 ha (1 acres).</p> <p><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to various species of native fish and wildlife (full description in WDFW PHS report p. 152)</p> <p><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Old-growth/Mature forests:</b> (<u>Old-growth west of Cascade crest</u>) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) &gt; 81 cm (32 in) dbh or &gt; 200 years of age. (<u>Mature forests.</u>) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Oregon white Oak:</b> Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158.)</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161)</p> <p><input checked="" type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</p> <p><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Caves:</b> A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Talus:</b> Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> <b>Snags and Logs:</b> Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of &gt;51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30cm (12 in) in diameter at the largest end, and &gt; 6m (20 ft) long.</p> <p style="padding-left: 40px;">If wetland has <b>3 or more</b> priority habitats = <b>4 points</b>          If wetland has <b>2</b> priority habitats = <b>3 points</b>          If wetland has <b>1</b> priority habitat = <b>1 point</b>          No habitats = <b>0 points</b></p> <p><i>Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.</i></p>	<p>3</p>
--	----------

Wetland name or number   A  

<p>H 2.4 <u>Wetland Landscape</u> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>)  <i>(see p. 84)</i></p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. .... points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3</p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3</p> <p>There is at least 1 wetland within ½ mile. .... points = 2</p> <p>There are no wetlands within ½ mile ..... points = 0</p>	3
<p><b>H 2. TOTAL Score - opportunity for providing habitat</b>  <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	8
<p>TOTAL for H1 from page 14</p>	4
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	12

Wetland name or number \_\_\_A\_\_\_\_\_

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and circle the appropriate Category.*

<b>Wetland Type</b> <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	<b>Category</b>
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b>            Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.</p> <p>YES = Go to SC 1.1                      NO <input checked="" type="checkbox"/></p>	
<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = go to SC 1.2</p>	<p><b>Cat. I</b></p>
<p>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = Category II</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland.</p> <p><input type="checkbox"/> The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p> <p><b>Dual rating I/II</b></p>

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b></p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i>          S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>          YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?          YES = Category I      NO <input checked="" type="checkbox"/> Not a Heritage Wetland</p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0 Bogs (see p. 87)</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16” or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)              Yes - go to Q.3      NO - go to Q.2</li> <li>2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?              Yes - go to Q.3      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> <li>3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)?              Yes – Is a bog for purpose of rating      NO - go to Q.4  <i>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</i></li> <li>4. Is the wetland forested (&gt;30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of the total shrub/herbaceous cover)?              YES = Category I      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> </ol>	<p><b>Cat. I</b></p>



Wetland name or number \_\_\_A\_\_\_

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>          Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?          YES – go to SC 6.1      NO <input checked="" type="checkbox"/> not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>          In practical terms that means the following geographic areas:              – Long Beach Peninsula – lands west of SR 103              – Grayland-Westport – lands west of SR 105              – Ocean Shores-Copalis – lands west of SR 115 and SR 109          SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?              YES = Category II      NO – go to SC 6.2          SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?              YES = Category III</p>	<p><b>Cat. II</b></p> <p><b>Cat. III</b></p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the “highest” rating if wetland falls into several categories, and record on p. 1 .</i>          If you answered NO for all types enter “Not Applicable” on p.1.</p>	<p>NA</p>

Wetland name or number   B  

**WETLAND RATING FORM – WESTERN WASHINGTON**

Version 2 – Updated July 2006 to increase accuracy and reproducibility among users  
Updated Oct 2008 with the new WDFW definitions for priority habitats

Name of wetland (if known):   Thornquist Property – Wetland B   Date of site visit:   08/28/2014  

N. Lund,

Rated by:   K. Crandall   Trained by Ecology? Yes  No  Date of Training   10/2008  

SEC:   25   TOWNSHIP:   26N   RANGE:   04E   Is S/T/R in Appendix D? Yes  No

**SUMMARY OF RATING**

**Category based on FUNCTIONS provided by wetland**

I  II  III  IV

Category I = Score >70  
Category II = Score 51-69  
Category III = Score 30-50  
Category IV = Score < 30

Score for Water Quality Functions	20
Score for Hydrologic Functions	18
Score for Habitat Functions	14
<b>TOTAL score for functions</b>	<b>52</b>

**Category based on SPECIAL CHARACTERISTICS of wetland**

I  II  Does not Apply

**Final Category (choose the “highest” category from above)**

**II**

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Estuarine		Depressional	
Natural Heritage Wetland		Riverine	X
Bog		Lake-fringe	
Mature Forest		Slope	
Old Growth Forest		Flats	
Coastal Lagoon		Freshwater Tidal	
Interdunal			
None of the above	X	Check if unit has multiple HGM classes present	

Wetland name or number \_\_\_B\_\_\_\_\_

**Does the wetland unit being rated meet any of the criteria below?**

If you answer YES to any of the questions below you will need to protect the wetland according to the regulations regarding the special characteristics found in the wetland.

Check List for Wetlands That May Need Additional Protection (in addition to the protection recommended for its category)	YES	NO
SP1. <i>Has the wetland unit been documented as a habitat for any Federally listed Threatened or Endangered <b>animal</b> or <b>plant</b> species (T/E species)?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state or federal database.		X*
SP2. <i>Has the wetland unit been documented as habitat for any State listed Threatened or Endangered <b>animal</b> species?</i> For the purposes of this rating system, “documented” means the wetland is on the appropriate state database. Note: Wetlands with State listed plant species are categorized as Category I Natural Heritage Wetlands (see p. 19 of data form).		X*
SP3. <i>Does the wetland unit contain individuals of Priority species listed by the WDFW for the state?</i>		X*
SP4. <i>Does the wetland unit have a local significance in addition to its functions?</i> For example, the wetland has been identified in the Shoreline Master Program, the Critical Areas Ordinance, or in a local management plan as having special significance.		X

**\*The study area was reviewed for the presence of endangered, threatened, and priority species using WDFW online Priority Habitat and Species Data, PHS on the Web (<http://wdfw.wa.gov/mapping/phs/>).**

*To complete the next part of the data sheet you will need to determine the Hydrogeomorphic Class of the wetland being rated.*

The hydrogeomorphic classification groups wetlands into those that function in similar ways. Classifying the wetland first simplifies the questions needed to answer how it functions. The Hydrogeomorphic Class of a wetland can be determined using the key below. See p. 24 for more detailed instructions on classifying wetlands.

### Classification of Wetland Units in Western Washington

**If the hydrologic criteria listed in each question do not apply to the entire unit being rated, you probably have a unit with multiple HGM classes. In this case, identify which hydrologic criteria in Questions 1-7 apply, and go to Question 8.**

1. Are the water levels in the wetland unit usually controlled by tides (i.e. except during floods)?  
NO – go to 2                      YES – the wetland class is **Tidal Fringe**

If yes, is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)? **YES – Freshwater Tidal Fringe** **NO – Saltwater Tidal Fringe (Estuarine)**

*If your wetland can be classified as a Freshwater Tidal Fringe use the forms for **Riverine** wetlands. If it is Saltwater Tidal Fringe it is rated as an **Estuarine** wetland. Wetlands that were called estuarine in the first and second editions of the rating system are called Salt Water Tidal Fringe in the Hydrogeomorphic Classification. Estuarine wetlands were categorized separately in the earlier editions, and this separation is being kept in this revision. To maintain consistency between editions, the term “Estuarine” wetland is kept. Please note, however, that the characteristics that define Category I and II estuarine wetlands have changed (see p. ).*

2. The entire wetland unit is flat and precipitation is only source (>90%) of water to it. Groundwater and surface water runoff are NOT sources of water to the unit

NO – go to 3                      YES – The wetland class is **Flats**

If your wetland can be classified as a “Flats” wetland, use the form for **Depressional** wetlands.

3. Does the entire wetland unit **meet both** of the following criteria?

The vegetated part of the wetland is on the shores of a body of open water (without any vegetation on the surface) at least 20 acres (8 ha) in size;

At least 30% of the open water area is deeper than 6.6 ft (2 m)?

NO – go to 4                      YES – The wetland class is **Lake-fringe (Lacustrine Fringe)**

4. Does the entire wetland unit **meet all** of the following criteria?

The wetland is on a slope (*slope can be very gradual*),

The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks.

The water leaves the wetland **without being impounded**?

NOTE: *Surface water does not pond in these types of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3ft diameter and less than a foot deep).*

NO – go to 5                      YES – The wetland class is **Slope**

Wetland name or number \_\_\_B\_\_\_\_\_

5. Does the entire wetland unit **meet all** of the following criteria?

The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river.

The overbank flooding occurs at least once every two years

*NOTE: The riverine unit can contain depressions that are filled with water when the river is not flooding.*

NO - go to 6

YES – The wetland class is **Riverine**

6. Is the entire wetland unit in a topographic depression in which water ponds, or is saturated to the surface, at some time during the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to 7

YES – The wetland class is **Depressional**

7. Is the entire wetland unit located in a very flat area with no obvious depression and no overbank flooding. The unit does not pond surface water more than a few inches. The unit seems to be maintained by high groundwater in the area. The wetland may be ditched, but has no obvious natural outlet.

NO – go to 8

YES – The wetland class is **Depressional**

8. Your wetland unit seems to be difficult to classify and probably contains several different HGM classes. For example, seeps at the base of a slope may grade into a riverine floodplain, or a small stream within a depressional wetland has a zone of flooding along its sides. **GO BACK AND IDENTIFY WHICH OF THE HYDROLOGIC REGIMES DESCRIBED IN QUESTIONS 1-7 APPLY TO DIFFERENT AREAS IN THE UNIT** (make a rough sketch to help you decide). Use the following table to identify the appropriate class to use for the rating system if you have several HGM classes present within your wetland. **NOTE:** Use this table only if the class that is recommended in the second column represents 10% or more of the total area of the wetland unit being rated. If the area of the class listed in column 2 is less than 10% of the unit, classify the wetland using the class that represents more than 90% of the total area.

<i>HGM classes within the wetland unit being rated</i>	<i>HGM Class to Use in Rating</i>
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake-fringe	Lake-fringe
Depressional + Riverine along stream within boundary	Depressional
Depressional + Lake-fringe	Depressional
Salt Water Tidal Fringe and any other class of freshwater wetland	Treat as ESTUARINE under wetlands with special characteristics

If you are unable still to determine which of the above criteria apply to your wetland, or you have more than 2 HGM classes within a wetland boundary, classify the wetland as **Depressional** for the rating.

Wetland name or number \_\_\_B\_\_\_

<b>R</b>	<b>Riverine and Freshwater Tidal Fringe Wetlands</b>	<b>Points</b>
WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality		
<b>R</b>	<b>R 1. Does the wetland have the <u>potential</u> to improve water quality?</b>	<i>(see p. 52)</i>
<b>R</b>	R 1.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >3/4 area of wetland ..... points = 8 Depressions cover > 1/2 area of wetland ..... points = 4 Depressions present but cover < 1/2 area of wetland ..... points = 2 No depressions present ..... points = 0	4
<b>R</b>	R 1.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland ..... points = 8 Forest or shrub > 1/3 area of the wetland ..... points = 6 Ungrazed, emergent plants > 2/3 area of wetland ..... points = 6 Ungrazed emergent plants > 1/3 area of wetland ..... points = 3 Forest, shrub, and ungrazed emergent < 1/3 area of wetland ..... points = 0	6
<b>R</b>	<b>Total for R 1</b> <i>Add the points in the boxes above</i>	10
<b>R</b>	<b>R 2. Does the wetland have the <u>opportunity</u> to improve water quality? <i>(see p. 53)</i></b> Answer YES if you know or believe there are pollutants in groundwater or surface water coming into the wetland that would otherwise reduce water quality in streams, lakes or groundwater downgradient from the wetland? <i>Note which of the following conditions provide the sources of pollutants.</i> <input type="checkbox"/> <input type="checkbox"/> Grazing in the wetland or within 150 ft <input checked="" type="checkbox"/> <input type="checkbox"/> Untreated stormwater discharges to wetland <input type="checkbox"/> <input type="checkbox"/> Tilled fields or orchards within 150 ft of wetland <input checked="" type="checkbox"/> <input type="checkbox"/> A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging <input checked="" type="checkbox"/> <input type="checkbox"/> Residential, urban areas, golf courses are within 150 ft of wetland <input type="checkbox"/> <input type="checkbox"/> The river or stream linked to the wetland has a contributing basin where human activities have raised levels of sediment, toxic compounds or nutrients in the river water above standards for water quality <input type="checkbox"/> <input type="checkbox"/> Other _____ <b>YES</b> multiplier is 2 <b>NO</b> multiplier is 1	multiplier <u>2</u>
<b>R</b>	<b>TOTAL - Water Quality Functions</b> Multiply the score from R 1 by R 2 <i>Add score to table on p. 1</i>	20

**Comments**

<b>R Riverine and Freshwater Tidal Fringe Wetlands</b>		
<b>HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding and stream erosion</b>		
	<b>R 3. Does the wetland have the <u>potential</u> to reduce flooding and erosion?</b>	<i>(see p. 54)</i>
<b>R</b>	<p>R 3.1 Characteristics of the overbank storage the wetland provides:  <i>Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (width of wetland)/(width of stream).</i>                      If the ratio is more than 20..... points = 9                      If the ratio is between 10 – 20..... points = 6                      If the ratio is 5- &lt;10 ..... points = 4                      If the ratio is 1- &lt;5 ..... points = 2                      If the ratio is &lt; 1..... points = 1</p>	2
<b>R</b>	<p>R 3.2 Characteristics of vegetation that slow down water velocities during floods: <i>Treat large woody debris as “forest or shrub”.</i> Choose the points appropriate for the best description.                      Forest or shrub for &gt;1/3 area OR Emergent plants &gt; 2/3 area ..... points = 7                      Forest or shrub for &gt; 1/10 area OR Emergent plants &gt; 1/3 area ..... points = 4                      Vegetation does not meet above criteria..... points = 0</p>	7
<b>R</b>	<b>Total for R 3</b> <i>Add the points in the boxes above</i>	<b>9</b>
<b>R</b>	<p><b>R 4. Does the wetland have the <u>opportunity</u> to reduce flooding and erosion? (see p. 57)</b>                      Answer YES if the wetland is in a location in the watershed where the flood storage, or reduction in water velocity, it provides helps protect downstream property and aquatic resources from flooding or excessive and/or erosive flows. <i>Note which of the following conditions apply.</i>  <input checked="" type="checkbox"/> <input type="checkbox"/> There are human structures and activities downstream (roads, buildings, bridges, farms) that can be damaged by flooding.  <input checked="" type="checkbox"/> <input type="checkbox"/> There are natural resources downstream (e.g. salmon redds) that can be damaged by flooding  <input type="checkbox"/> <input type="checkbox"/> Other _____                      (Answer NO if the major source of water to the wetland is controlled by a reservoir or the wetland is tidal fringe along the sides of a dike)                      YES multiplier is 2      NO multiplier is 1</p>	multiplier <u>2</u>
<b>R</b>	<b>TOTAL - Hydrologic Functions</b> Multiply the score from R 3 by R 4 <i>Add score to table on p. 1</i>	<b>18</b>

<b>These questions apply to wetlands of all HGM classes.</b> <b>HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat</b>	
<b>H 1. Does the wetland have the potential to provide habitat for many species?</b>	
<p>H 1.1 <u>Vegetation structure</u> (see p. 72)                      Check the types of vegetation classes present (as defined by Cowardin) if the class is 1/4 acre or covers more than 10% of the area of the wetland if unit smaller than 2.5 acres.</p> <p> <input type="checkbox"/> <input type="checkbox"/> Aquatic bed  <input checked="" type="checkbox"/> <input type="checkbox"/> Emergent plants  <input type="checkbox"/> <input type="checkbox"/> Scrub/shrub (areas where shrubs have &gt;30% cover)  <input checked="" type="checkbox"/> <input type="checkbox"/> Forested (areas where trees have &gt;30% cover)  <input type="checkbox"/> <input type="checkbox"/> Forested areas have 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the forested polygon                 </p> <p>Add the number of vegetation types that qualify. If you have:</p> <p style="text-align: right;">                     4 structures or more ..... points = 4                      3 structures ..... points = 2                      2 structures ..... points = 1                      1 structure ..... points = 0                 </p>	1
<p>H 1.2. <u>Hydroperiods</u> (see p. 73)                      Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or 1/4 acre to count. (see text for descriptions of hydroperiods)</p> <p> <input type="checkbox"/> <input type="checkbox"/> Permanently flooded or inundated                      4 or more types present ..... points = 3  <input checked="" type="checkbox"/> <input type="checkbox"/> Seasonally flooded or inundated                      3 types present ..... points = 2  <input type="checkbox"/> <input type="checkbox"/> Occasionally flooded or inundated                      2 types present ..... points = 1  <input type="checkbox"/> <input type="checkbox"/> Saturated only    1 types present ..... points = 0  <input checked="" type="checkbox"/> <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland  <input type="checkbox"/> <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland  <input type="checkbox"/> <input type="checkbox"/> <b>Lake-fringe wetland = 2 points</b>  <input type="checkbox"/> <input type="checkbox"/> <b>Freshwater tidal wetland = 2 points</b> </p>	1
<p>H 1.3. <u>Richness of Plant Species</u> (see p. 75)                      Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. (different patches of the same species can be combined to meet the size threshold)                      You do not have to name the species.                      Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle</p> <p style="text-align: right;">                     If you counted:                      &gt; 19 species ..... points = 2                      5 - 19 species ..... points = 1                      &lt; 5 species ..... points = 0                 </p> <p>List species below if you want to:</p>	1

<p><b>H 1.4. Interspersion of habitats (see p. 76)</b> Decide from the diagrams below whether interspersion between Cowardin vegetation classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.</p> <p>None = 0 points    Low = 1 point    Moderate = 2 points    High = 3 points</p> <p>[riparian braided channels]</p> <p>NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".</p>	2
<p><b>H 1.5. Special Habitat Features: (see p. 77)</b> Check the habitat features that are present in the wetland. The number of checks is the number of points you put into the next column.</p> <ul style="list-style-type: none"> <li><input type="checkbox"/> <input type="checkbox"/> Large, downed, woody debris within the wetland (&gt;4in. diameter and 6 ft long).</li> <li><input type="checkbox"/> <input type="checkbox"/> Standing snags (diameter at the bottom &gt; 4 inches) in the wetland</li> <li><input checked="" type="checkbox"/> <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2m) and/or overhanging vegetation extends at least 3.3 ft (1m) over a stream for at least 33 ft (10m)</li> <li><input type="checkbox"/> <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (&gt;30degree slope) OR signs of recent beaver activity are present</li> <li><input type="checkbox"/> <input type="checkbox"/> At least ¼ acre of thin-stemmed persistent vegetation or woody branches are present in areas that are permanently or seasonally inundated. (structures for egg-laying by amphibians)</li> <li><input type="checkbox"/> <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in each stratum of plants</li> </ul> <p><i>Note: The 20% stated in early printings of the manual on page 78 is an error.</i></p>	1
<p><b>H 1. TOTAL</b> Score - potential for providing habitat Add the scores from H1.1, H1.2, H1.3, H1.4, H1.5</p>	6

<b>H 2. Does the wetland have the opportunity to provide habitat for many species?</b>		
<p><b>H 2.1 Buffers</b> (<i>see p. 80</i>)  <i>Choose the description that best represents condition of buffer of wetland. The highest scoring criterion that applies to the wetland is to be used in the rating. See text for definition of "undisturbed."</i></p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 100 m                      (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% of circumference.                      No developed areas within undisturbed part of buffer.                      (relatively undisturbed also means no-grazing) ..... Points = 5</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 100 m (330 ft)                      of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 50% circumference..... Points = 4</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 50 m                      (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt;95% circumference..... Points = 4</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 100 m                      (330ft) of relatively undisturbed vegetated areas, rocky areas, or open water &gt; 25% circumference..... Points = 3</p> <p><input type="checkbox"/> <input type="checkbox"/> ..... 50 m                      (170ft) of relatively undisturbed vegetated areas, rocky areas, or open water for &gt; 50% circumference..... Points = 3</p> <p style="text-align: center;"><b>If buffer does not meet any of the criteria above</b></p> <p><input type="checkbox"/> <input type="checkbox"/> No paved areas (except paved trails) or buildings within 25 m (80ft) of wetland &gt; 95% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> <input type="checkbox"/> No paved areas or buildings within 50m of wetland for &gt;50% circumference. Light to moderate grazing, or lawns are OK..... Points = 2</p> <p><input type="checkbox"/> <input type="checkbox"/> Heavy grazing in buffer..... Points = 1</p> <p><input type="checkbox"/> <input type="checkbox"/> Vegetated buffers are &lt;2m wide (6.6ft) for more than 95% of the circumference (e.g. tilled fields, paving, basalt bedrock extend to edge of wetland ..... Points = 0</p> <p><input checked="" type="checkbox"/> Buffer does not meet any of the criteria above. Points = 1</p>		1
<p><b>H 2.2 Corridors and Connections</b> (<i>see p. 81</i>)</p> <p>H 2.2.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 150 ft wide, has at least 30% cover of shrubs, forest or native undisturbed prairie, that connects to estuaries, other wetlands or undisturbed uplands that are at least 250 acres in size? (<i>dams in riparian corridors, heavily used gravel roads, paved roads, are considered breaks in the corridor</i>).</p> <p style="text-align: center;">YES = <b>4 points</b> (<i>go to H 2.3</i>)      NO = go to H 2.2.2</p> <p>H 2.2.2 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor (either riparian or upland) that is at least 50ft wide, has at least 30% cover of shrubs or forest, and connects to estuaries, other wetlands or undisturbed uplands that are at least 25 acres in size? <b>OR a Lake-fringe wetland</b>, if it does not have an undisturbed corridor as in the question above?</p> <p style="text-align: center;">YES = <b>2 points</b> (<i>go to H 2.3</i>)      NO = H 2.2.3</p> <p>H 2.2.3 Is the wetland:</p> <p style="padding-left: 40px;">within 5 mi (8km) of a brackish or salt water estuary OR                      within 3 mi of a large field or pasture (&gt;40 acres) OR                      within 1 mi of a lake greater than 20 acres?</p> <p style="text-align: center;">YES = <b>1 point</b>      NO = <b>0 points</b></p>		1

<p>H 2.3 <u>Near or adjacent to other priority habitats listed by WDFW (see new and complete descriptions of WDFW priority habitats, and the counties in which they can be found, in the PHS report <a href="http://wdfw.wa.gov/hab/phslist.htm">http://wdfw.wa.gov/hab/phslist.htm</a>)</u></p> <p>Which of the following priority habitats are within 330ft (100m) of the wetland? (NOTE: the connections do not have to be relatively undisturbed)</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Aspen Stands:</b> Pure or mixed stands of aspen greater than 0.4 ha (1 acres).</p> <p><input type="checkbox"/> <b>Biodiversity Areas and Corridors:</b> Areas of habitat that are relatively important to various species of native fish and wildlife (full description in WDFW PHS report p. 152)</p> <p><input type="checkbox"/> <b>Herbaceous Balds:</b> Variable size patches of grass and forbs on shallow soils over bedrock.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Old-growth/Mature forests:</b> (<u>Old-growth west of Cascade crest</u>) Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 20 trees/ha (8 trees/acre) &gt; 81 cm (32 in) dbh or &gt; 200 years of age. (<u>Mature forests.</u>) Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less than 100%; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80 - 200 years old west of the Cascade crest.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Oregon white Oak:</b> Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158.)</p> <p><input checked="" type="checkbox"/> <input type="checkbox"/> <b>Riparian:</b> The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Westside Prairies:</b> Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161)</p> <p><input checked="" type="checkbox"/> <b>Instream:</b> The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.</p> <p><input type="checkbox"/> <b>Nearshore:</b> Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (full descriptions of habitats and the definition of relatively undisturbed are in WDFW report: pp. 167-169 and glossary in Appendix A.)</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Caves:</b> A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Cliffs:</b> Greater than 7.6 m (25 ft) high and occurring below 5000 ft.</p> <p><input type="checkbox"/> <input type="checkbox"/> <b>Talus:</b> Homogenous areas of rock rubble ranging in average size 0.15 - 2.0 m (0.5 - 6.5 ft), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.</p> <p><input type="checkbox"/> <b>Snags and Logs:</b> Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of &gt;51 cm (20 in) in western Washington and are &gt; 2 m (6.5 ft) in height. Priority logs are &gt; 30cm (12 in) in diameter at the largest end, and &gt; 6m (20 ft) long.</p> <p style="padding-left: 40px;">If wetland has <b>3 or more</b> priority habitats = <b>4 points</b>          If wetland has <b>2</b> priority habitats = <b>3 points</b>          If wetland has <b>1</b> priority habitat = <b>1 point</b>          No habitats = <b>0 points</b></p> <p><i>Note: All vegetated wetland are by definition a priority habitat but are not included in this list. Nearby wetlands are addressed in question H2.4.</i></p>	<p>3</p>
--	----------

Wetland name or number \_\_\_B\_\_\_

<p>H 2.4 <u>Wetland Landscape</u> (<i>choose the <b>one</b> description of the landscape around the wetland that best fits</i>)  <i>(see p. 84)</i></p> <p>There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing between wetlands OK, as is lake shore with some boating, but connections should NOT be bisected by paved roads, fill, fields, or other development. .... points = 5</p> <p>The wetland is Lake-fringe on a lake with little disturbance and there are 3 other lake-fringe wetlands within ½ mile ..... points = 5</p> <p>There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed ..... points = 3</p> <p>The wetland is Lake-fringe on a lake <b>with</b> disturbance and there are 3 other lake-fringe wetland within ½ mile ..... points = 3</p> <p>There is at least 1 wetland within ½ mile. .... points = 2</p> <p>There are no wetlands within ½ mile ..... points = 0</p>	3
<p><b>H 2. TOTAL Score - opportunity for providing habitat</b>  <i>Add the scores from H2.1, H2.2, H2.3, H2.4</i></p>	8
<p>TOTAL for H1 from page 14</p>	6
<p><b>Total Score for Habitat Functions</b> – add the points for H 1, H 2 and record the result on p. 1</p>	14

Wetland name or number \_\_\_B\_\_\_\_\_

**CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS**

*Please determine if the wetland meets the attributes described below and circle the appropriate Category.*

<b>Wetland Type</b> <i>Check off any criteria that apply to the wetland. Circle the Category when the appropriate criteria are met.</i>	<b>Category</b>
<p><b>SC 1.0 Estuarine wetlands (see p. 86)</b>            Does the wetland unit meet the following criteria for Estuarine wetlands?</p> <p><input type="checkbox"/> The dominant water regime is tidal,  <input type="checkbox"/> Vegetated, and  <input type="checkbox"/> With a salinity greater than 0.5 ppt.</p> <p>YES = Go to SC 1.1                      NO <input checked="" type="checkbox"/></p>	
<p>SC 1.1 Is the wetland unit within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-151?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = go to SC 1.2</p>	<p><b>Cat. I</b></p>
<p>SC 1.2 Is the wetland unit at least 1 acre in size and meets at least two of the following three conditions?</p> <p><input type="checkbox"/> YES = Category I                      <input type="checkbox"/> NO = Category II</p> <p><input type="checkbox"/> The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. If the non-native <i>Spartina</i> spp. are the only species that cover more than 10% of the wetland, then the wetland should be given a dual rating (I/II) The are aof <i>Spartina</i> would be rated a Category II while the relatively undisturbed upper marsh with native species would be a Category I. Do not, however, exclude the area of <i>Spartina</i> in determining the size threshold of 1 acre.</p> <p><input type="checkbox"/> At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed wetland.</p> <p><input type="checkbox"/> The wetland has at least 2 or the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p> <p><b>Dual rating I/II</b></p>

<p><b>SC 2.0 Natural Heritage Wetlands (see p. 87)</b></p> <p>Natural Heritage wetlands have been identified by the Washington Natural Heritage Program/DNR as either high quality undisturbed wetlands or wetlands that support state Threatened, Endangered, or Sensitive plant species.</p> <p>SC 2.1 Is the wetland being rated in a Section/Township/Range that contains a Natural Heritage wetland? <i>(this question is used to screen out most sites before you need to contact WNHP/DNR)</i>          S/T/R information from Appendix D <input checked="" type="checkbox"/> or accessed from WNHP/DNR web site <input type="checkbox"/>          YES <input type="checkbox"/> – contact WNHP/DNR (see p. 79) and go to SC 2.2      NO <input checked="" type="checkbox"/></p> <p>SC 2.2 Has DNR identified the wetland as a high quality undisturbed wetland or as or as a site with state threatened or endangered plant species?          YES = Category I      NO <input checked="" type="checkbox"/> Not a Heritage Wetland</p>	<p><b>Cat. I</b></p>
<p><b>SC 3.0 Bogs (see p. 87)</b></p> <p>Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below to identify if the wetland is a bog. If you answer yes, you will still need to rate the wetland based on its functions.</i></p> <ol style="list-style-type: none"> <li>1. Does the wetland have organic soils horizons (i.e. layers of organic soil), either peats or mucks, that compose 16” or more of the first 32 inches of the soil profile? (See Appendix B for a field key to identify organic soils.)              Yes - go to Q.3      NO - go to Q.2</li> <li>2. Does the wetland have organic soils, either peats or mucks, that are less than 16 inches deep over bedrock or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or pond?              Yes - go to Q.3      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> <li>3. Does the wetland have more than 70% cover of mosses at ground level, AND other plants, if present, consist of the “bog” species listed in Table 3 as a significant component of the vegetation (more than 30% of the total shrub and herbaceous cover consists species in Table 3)?              Yes – Is a bog for purpose of rating      NO - go to Q.4  <i>NOTE: If you are uncertain about the extent of mosses in the understory, you may substitute that criterion by measuring the pH of the water that seeps into a hole dug at least 16” deep. If the pH is less than 5.0 and the “bog” plant species in Table 3 are present, the wetland is a bog.</i></li> <li>4. Is the wetland forested (&gt;30% cover) with sitka spruce, subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Englemann’s spruce, or western white pine, WITH any of the species (or combination of species) on the bog species plant list in Table 3 as a significant component of the ground cover (&gt;30% coverage of the total shrub/herbaceous cover)?              YES = Category I      NO <input checked="" type="checkbox"/> is not a bog for purpose of rating</li> </ol>	<p><b>Cat. I</b></p>



Wetland name or number \_\_\_B\_\_\_\_\_

<p><b>SC 6.0 Interdunal Wetlands (see p. 93)</b>          Is the wetland unit west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)?          YES – go to SC 6.1      NO <input checked="" type="checkbox"/> not an interdunal wetland for rating  <i>If you answer yes you will still need to rate the wetland based on its functions.</i>          In practical terms that means the following geographic areas:              – Long Beach Peninsula – lands west of SR 103              – Grayland-Westport – lands west of SR 105              – Ocean Shores-Copalis – lands west of SR 115 and SR 109          SC 6.1 Is the wetland 1 acre or larger, or is it in a mosaic of wetlands that is 1 acre or larger?              YES = Category II      NO – go to SC 6.2          SC 6.2 Is the unit between 0.1 and 1 acre, or is it in a mosaic of wetlands that is between 0.1 and 1 acre?              YES = Category III</p>	<p><b>Cat. II</b></p> <p><b>Cat. III</b></p>
<p><b>Category of wetland based on Special Characteristics</b>  <i>Choose the “highest” rating if wetland falls into several categories, and record on p. 1 .</i>          If you answered NO for all types enter “Not Applicable” on p.1.</p>	<p>NA</p>