WETLAND ASSESSMENT REPORT

Wetland Delineation
Nason Creek Floodplain Repeat
Winton, Chelan County, WA

Yakama Nation Upper Columbia

Habitat Restoration Project

Prepared by

hamerenvironmental
INNOVATIVE SOLUTIONS TO NATURAL RESOURCES

P.O. Box 2561
1510 South 3rd Street
Mt. Vernon, WA 98273
(360) 899-5156
Hamer@hamerenvironmental.com

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Prepared For: Yakama Nation
Chris Butler
Methow Project Biologist
1885 S. Wenatchee Ave.
Wenatchee, WA. 98801
Mobile: 509.996.5005
Fax: 509.423.7616

Prepared By: Adam Crispin, Senior Wetland Scientist and Fisheries Biologist
Meg Harrison, Wetland Technician I

Contact: Hamer Environmental, Wetland and Fisheries Division
4202 Meridian Street, Suite 200
Bellingham, WA 98226
Tel (Cell): 360.420.4905
Tel (Office): 360.889.5156
Fax: 360.899.5146
adam@hamerenvironmental.com

Table of Contents

Figures

Tables

Appendices

Limitations

This report is based upon information collected in the field and obtained from resources provided by the Federal, State and Local Agencies. Conclusions are the professional opinion of the authors and are subject to approval by the appropriate agencies.

Executive Summary

On November 3rd, 2021, Hamer Environmental (Hamer) scientists conducted a site assessment of the study area, which consisted of 3.86 acres with the Nason Creek floodplain in Chelan County, Washington. This wetland assessment was prepared for Yakama Nation Fisheries in conjunction with the Yakama Nation Upper Columbia Habitat Restoration Project (URCHPP) under the Yakama Fisheries Resource Management Program. One wetland was delineated within the study area during the site assessment, and wetland edges were flagged. The wetland was rated according to the current Washington State Department of Ecology Wetland Rating System (Hruby 2014) and was determined to be Category III. According to County Critical Area Ordinances, a Category III wetland with low land-use intensity and moderate habitat function requires a 75-foot buffer. After reviewing historical aerial images, LiDAR, and USACE field methodologies, Hamer scientists evaluate wetland habitat function and values. This report contains descriptions of the existing conditions of the study area.

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Chapter 1. Introduction

1.1 Scope and Purpose

This Wetland Assessment Report has been prepared to meet the requirements for wetland determinations according to U.S. Army Corps of Engineers guidelines (USACE 2008). A wetland assessment was conducted for the Yakama Nation Fisheries in conjunction with the Yakama Nation Upper Columbia Habitat Restoration Project (URCHPP). This report contains project area natural resources descriptions, including wetlands and rivers. Hamer delineated one wetland onsite during the site investigation, and wetland boundaries were flagged.

Information gathered in this report assists project designers in avoiding and/or minimizing impacts to sensitive areas and species, provides information for regulatory reviewers, and provides information for mitigation reports if needed. The report is anticipated to support review by the Yakama Nation, U.S. Army Corps of Engineers (USACE), and/or the Washington State Department of Ecology (Ecology). The purpose of this document is to satisfy federal, state, and local regulations for wetland identification and delineation within the proposed project area. The project proposes implementing instream restoration on Nason Creek to improve habitat for threatened fish species.

1.2 Project Location

The project site (APE) is approximately 3.86 acres located along State Route 207 near Coles Corner in Chelan Country, Washington. The site is situated in the WRIA 45 and sub-watershed Lower Nason Creek (HUC 170200110203). The legal geographic location is Section 09, Township 26 North, Range 17 East (Figure 1).

Figure 1. Project location in red (Google Maps 2021)

Chapter 2. Methods

2.1 Wetland Identification, Delineation, and Classification

Hamer scientists delineate wetlands according to local, state, and federal guidelines. Wetland resources are delineated using guidelines and methods described in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) as amended with the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast (Version 2.0)* (USACE 2010). Wetland boundaries are surveyed using a Trimble GEOxt GPS unit.

Delineators used several tools to identify and classify plants and soils examined within the investigated area. Plant indicator status and scientific plant names were identified using the *National Wetland Plant List: 2020 Update of Wetland Ratings* (Lichvar et al. 2014) and any updates to the *National Wetland Plant List* (USACE, 2016). Soil characteristics were recorded and classified using the *Field Book for Describing and Sampling Soils* (USDA, NRCS 2012). Hydric soil conditions were assessed using *Field Indicators of Hydric Soils in the United States, Version 8.2* (USDA, NRCS 2018).

Wetlands delineated were classified according to federal, state, and local systems. The *Classification of Wetlands and Deepwater Habitats of the United States* [Federal Geographic Data Committee (FGDC) 2013] is a descriptive classification, based on physical attributes (i.e., plant community, soils, and water regime). Wetlands perform a variety of biological, physical (hydrologic), and chemical (water quality) functions.

Chelan County defines wetland protection standards in Chapter 11.80 Wetland Overlay District (WOD), which includes guidelines for determining wetland buffers' width. The standard buffer widths are based on the category of wetland and the habitat score as determined by a qualified consultant. For this project, each wetland was assigned a hydrogeomorphic (HGM) classification to assess impacts and determine appropriate wetland restoration or mitigation (Brinson 1993). Functions and values for wetlands within the project vicinity were classified under HGM and evaluated using the Washington State Wetland Rating System for Eastern Washington (Hruby 2014). Ecology divides wetlands into four hierarchical categories based on specific attributes such as rarity, sensitivity to disturbance, and functions (Hruby 2014). The Ecology classification hierarchy ranges from Category I wetlands, which exhibit outstanding features (rare wetland type, relatively undisturbed or a high sensitivity to disturbance, and high level of functions) to Category IV wetlands, which have the lowest levels of function and are often heavily disturbed.

2.2 Wetlands and Waters of the State Definitions and Regulatory Requirements

Waters of the United States: “All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide; All interstate waters including interstate wetlands; All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the

use, degradation, or destruction of which could affect interstate or foreign commerce...Wetlands adjacent to waters (other than waters that are themselves wetlands) identified above." (Definition taken from 33 CFR, Part 328.3). "Adjacent" is defined as bordering, contiguous, or neighboring.

Wetlands: "Areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." (Definition taken from 33 CFR, Part 328.3).

Limits of jurisdiction in nontidal waters:

- in the absence of adjacent wetlands, the jurisdiction extends to the ordinary high-water mark;
- when adjacent wetlands are present, the jurisdiction extends beyond the ordinary high-water mark to the limit of the adjacent wetlands;
- when the Water of the United States consists only of wetlands, the jurisdiction extends to the limit of the wetland (taken from 33 CFR, Part 328.3).

Ordinary high-water mark: "that line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas." (U.S. Congress 1986).

Regulatory Requirements:
Wetlands/waters of the state are under the jurisdiction of the Army Corps of Engineers (Corps), state, and Yakama Tribal Code. The Corps has the authority to determine whether a wetland or stream is a water of the U.S. and thus federally regulated under Section 404 of the Clean Water Act (CWA).

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Chapter 3. Existing Conditions

3.1 Landscape Setting

The study area lies in the Nason Creek Drainage. Nason Creek is constrained by steep and rough mountains that range up to 6,000 feet in elevation. The surrounding Wenatchee National Forest has historically been logged for mid-elevation tree species such as Pacific silver fir (*Abies amabilis*), western hemlock (*Tsuga heterophylla*), and western red cedar (*Thuja plicata*) (Consulting, 2019). Snow falls between October to May and provides habitat to large mammals such as elk, bighorn sheep, and grey wolf. The study area lies south of the Lake Wenatchee State Park, where rural residencies transition into National Forest land for recreational use. In general, Nason Creek is relatively “pristine”; however, there are likely some downstream impacts due to stormwater (from impervious surfaces, old logging activities, campgrounds, and road runoff) and general residential inhabitance within the Lower Nason Creek Watershed.

3.2 Previously Mapped Wetlands and Streams

The National Wetlands Inventory (NWI) Map indicates a forested and scrub-shrub and riverine habitat within and in the Nason Creek APE's vicinity (Figure 2). Nason Creek flows from the southwest to the north relative to the project area. Nason Creek is the principal hydraulic feature to the surrounding wetlands and exhibits braided streams, divergent side channels, and the development of gravel bars (WSCC, 2000). The WDNR Natural Heritage Information System has no records of rare plants, high-quality wetlands, or ecosystems within the study area (WDNR 2020b).

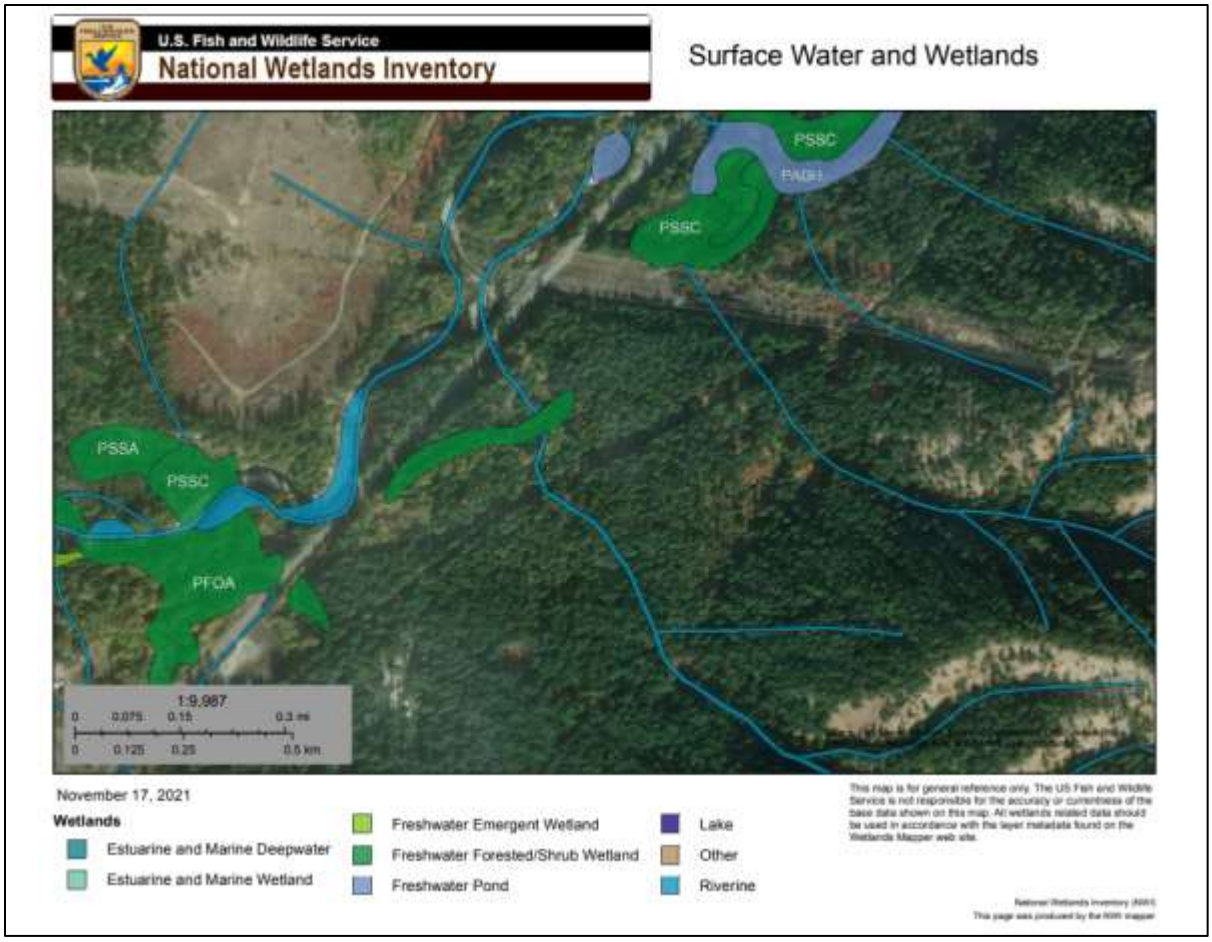


Figure 2. NWI-mapped wetlands

3.3 Wetlands

During the site assessment, Hamer scientists traversed the study area and observed one wetland onsite. Onsite wetland boundaries were delineated where indicators for hydrophytic vegetation, hydric soils, and wetland hydrology were present. Wetland determination data forms are complete with field observations from several sample plots within the study area (Figure 3). Table 1 summarizes the characteristics of the wetland.

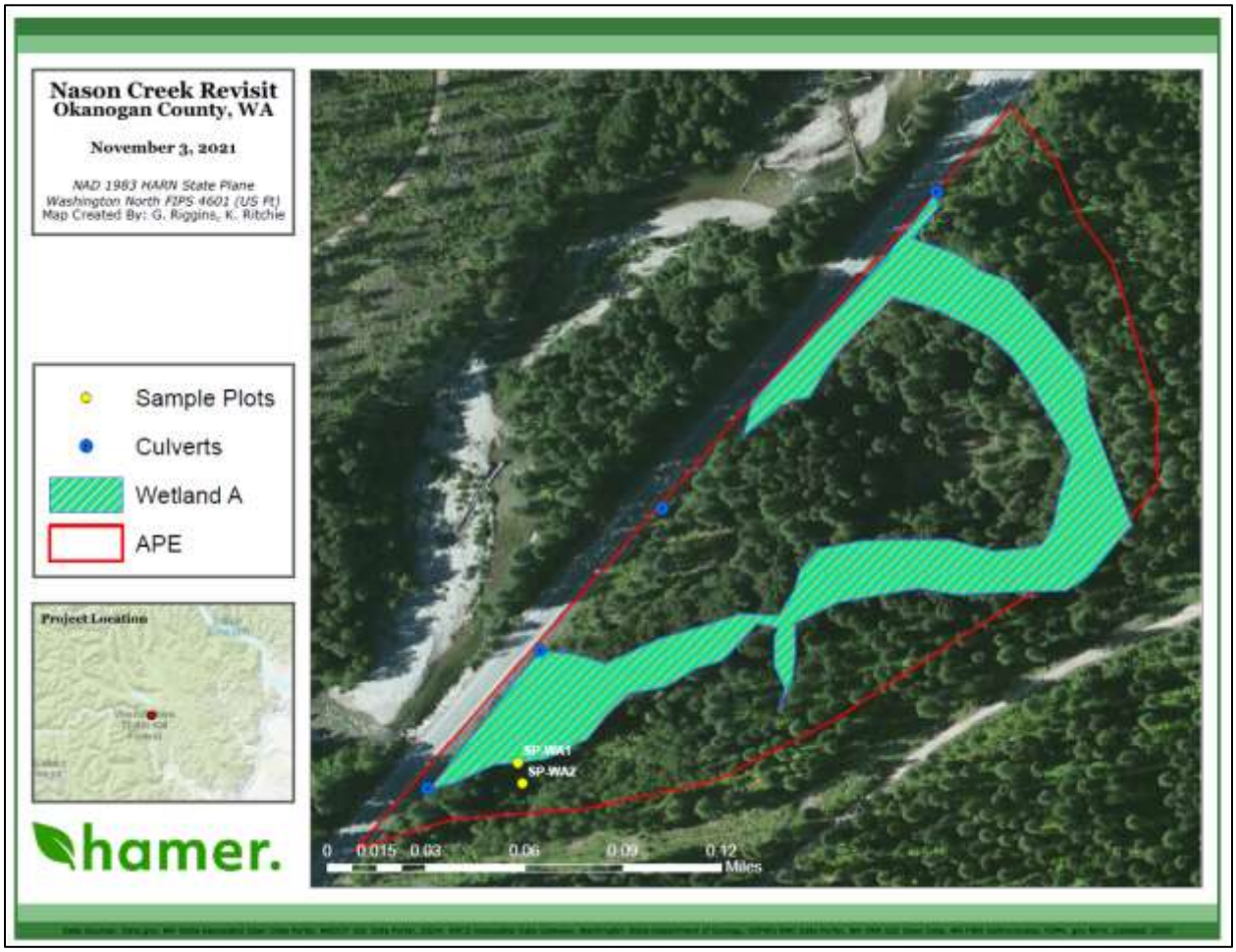


Figure 3. Wetland A within the boundaries of the Study area.

Table 1. Wetlands within the Project Area.

Wetland/ stream	Wetland Classification				Wetland Size (acres)	Wetland Buffer (ft)
	FGDC[1]	HGM	Ecology Category	Habitat Score		
Wetland A	PFO/PSS	Depressional	III	6	3.86	75

[1]FGDC (formerly Cowardin) or NWI Class based on vegetation: PFO=Palustrine Forested, PSS=Palustrine Scrub-shrub, PEM=Palustrine Emergent, R2EM = Riverine, Lower Perennial, Emergent.

3.3.1 Wetland A

Wetland A is characterized as a palustrine forested and scrub/shrub (PFO/PSS) wetland in topographical depression with diverging stream beds (FGDC 2013). The wetland is confined by State Route 207; however, several culverts allow water to flow from Nason Creek into the wetland. Conditions within the wetland appear to be seasonally variable and under winter flood conditions (Figure 3, Figure 4).

Wetland conditions vary throughout the wetland. The southern half of the wetland vegetation is dominated by red-osier dogwood (*Cornus sercicea)* and field horsetail *(Equisetum arvense L.).* As you transition into the northern half of the wetland, hummock islands provide habitat for Pacific silver fir (*Abies amabilis*) and douglas fir (*Pseudotsuga menziesii*) saplings. In addition, diverging streams channels interlace the wetland but appear to be abandoned side channels of Nason Creek. Along State Route 207 and in the northern half of the wetland, the dominant plant community is scrub-shrub. Douglas spiraea (*Spiraea douglasii*) and red-osier dogwood densely populate the roadside ditch and continue into the northern half of the wetland (Figure 5).

The hydric soil indicator Depleted Below Dark Surface (A11) was identified in the soil test plot in the wetland. In general, the subsurface soil layer is dark with a depleted matrix of 60% or more chroma of 2 or less, starting within 12inches and having a minimum thickness of 6 inches. The soil sample plot observed had a soil subsurface layer with a matrix color (7.5YR 2.5/1) and a second soil layer with matrix color (10YR 2/1) with an observed thickness of 13 inches. No prominent redox concentrations were observed (Appendix B).

Hyporheic flows from Nason Creek serve as the primary source of hydrology for Wetland A; however, the wetland likely also receives hydrology from road runoff and direct precipitation. At the time of the field investigation, the site showed evidence of the following wetland hydrology indicators: Sparsely Vegetated Concave Surface (B8), Geomorphic Position (D2), and FAC-Neutral Test (D5) (Appendix B). Wetland A has areas of seasonal surface water ponding outside of the sampled plots. The water depth in ponded areas ranges from one to three feet deep during times of high precipitation and spring runoff. Stream channels vary in vegetation cover, and hydrology ranges from ephemeral flowing streams to channels that may only be partially saturated year-round (Figure 3). Conditions within the wetland appear to be seasonally variable and under winter flood conditions. Some areas may be flooded from the subsurface flows from the Nason Creek. Apart from the sample plots, surface water was observed in the northwest half of the wetland that was dominated by the scrub-shrub plant community. Wetland A is partially within the floodplain of Nason Creek and may become inundated with surface water during seasonal or occasional flooding.

Wetland A is characterized as a Depressional wetland using the HGM system. It is a Category III wetland according to the current Ecology (2014) rating system based on its functions. Wetland A provides low levels of water quality and hydrologic function with a high level of habitat function. Wetland Rating system points were assigned as follows:

Water Quality Score: 6 (Low level of function)
Hydrologic Score: 6 (Low level of function)
Habitat Score: 6 (High level of function)
Total 18

Wetland functions and values for Wetland A are detailed in Appendix C.

Figure 4. Stream Channel found within the boundaries of Wetland A.

Figure 5. Ponded Areas within Wetland A.

3.3.2 Uplands

In addition to the wetland test pit, one upland sample pit (paired test pit) adjacent to the wetland was evaluated (Figure 6). Uplands are dominated by pacific silver fir, bitter cherry (*Prunus emarginata*), and black cottonwood *(Populus balsamifera spp.).* The forest understory was largely bare ground with sparse Oregon-grape (*Mahonia aquafolium*). Upland soils are generally very dark brown (10YR 3/2) to brown (10YR 4/3) silt loam (Appendix B).

Figure 6. Overview of upland areas.

References

Brinson, M.M. 1993. *A Hydrogeomorphic Classification for Wetlands*. Technical Report WRPDE-4. US Amy Engineers Waterways Experiment Station, Vicksburg, MS.

Consulting, C. C. (2019). *Nason Ridge Community Forest Management Plan.* Retrieved from https://www.co.chelan.wa.us/files/natural-resources/documents/Nason%20Ridge%20Community%20Forest%20Management%20Plan_2019%201125.pdf

[Ecology] Washington Department of Ecology. 2021. Washington State Department of Ecology. Water Quality Assessments/TMDLs. Accessed online at: https://fortress.wa.gov/ecy/waterqualityatlas/map.aspx.

Ecology. 2018. *Wetlands in Washington State Volume 2 – Protecting and Managing Wetlands*. Appendix 8-D: Guidance on Widths of Buffers and Ratios for Compensatory Mitigation for Use with the Eastern Washington Wetland Rating System. Ecology Publication No. 05-06-008.

Environmental Laboratory. 1987. Corps of Engineers wetland delineation manual. Technical Report Y-87-1, Environmental Laboratory, Department of the Army, Waterways Experiment Station, Vicksburg, MI.

Federal Geographic Data Committee. 2013. Classification of wetlands and deepwater habitats of the United States. FGDC-STD-004-2013. Second Edition. Wetlands Subcommittee, Federal Geographic Data Committee and U.S. Fish and Wildlife Service, Washington, DC.

Fisheries, Y. N. (2021). *Upper Columbia Habitat Restoration Project (UCHRP).* Retrieved from Yakama Nation Fisheries: https://www.yakamafish-nsn.gov/restore/projects/uchrp

Franklin, J.F. and C.T. Dyrness. 1988. Natural vegetation of Oregon and Washington. Oregon State University Press, Corvallis, OR.

Hruby, T. (2014). *Washington State Wetland Rating System for Eastern Washington: 2014 Update*. (Publication #14-06-030). Olympia, WA: Washington Department of Ecology.

Lichvar, R.W., D.L. Banks, W.N. Kirchner, and N.C. Melvin. 2016. *The National Wetland Plant List*: 2016 wetland ratings. Phytoneuron 2016-30: 1-17. Published 28 April 2016. ISSN 2153 733X.

StreamNet. 2021. StreamNet Mapper online. Available at: https://psmfc.maps.arcgis.com/apps/webappviewer/index.html?id=3be91b0a32a9488a901c3885bbfc2b0b

[USACE] U.S. Army Corps of Engineers. 2007. [Regulatory guidance letter No. 07-02.] Located at http://www.usace.army.mil/cecw/pages/rglsindx.aspx.

USACE. 2010. United States Army Corps of Engineers. Final Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountain, Valley, and Coast Region, ed. J.S. Wakely, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-03-13. Vicksburg, MS: U.S. Army Engineer Research and Development Center.

USACE. 2020. United States Army Corps of Engineers. National Wetland Plant List, Version 3.3. Accessed online at: https://www.codot.gov/programs/environmental/wetlands/assets/nwpl_co2020.pdf

USDA, NRCS. 2010. United States Department of Agriculture, Natural Resource Conservation Service, in cooperation with the National Technical Committee for Hydric Soils. Field indicators of hydric soils in the United States guide for identifying and delineating hydric soils, version 7.0. Washington, D.C.

USDA, NRCS. 2012. United States Department of Agriculture, Natural Resource Conservation Service. Field book for describing and sampling soils, version 3.0. September 2012. Accessed online at: http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052523.pdf.

USDA, NRCS. 2018. United States Department of Agriculture, Soil Conservation Service in cooperation with the National Technical Committee for Hydric Soils. Hydric soils of the United States. Available online at http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/.

USDA, NRCS. 2021. Soil survey of Project Area, Washington. U.S. Department of Agriculture, Natural Resource Conservation Service. Accessed online at: http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm.

USFWS. 2021. United States Fish and Wildlife Service, National Wetlands Inventory. NWI – National wetlands inventory in Washington State. Accessed online at: http://www.fws.gov/wetlands/Data/Mapper.html.

USFWS. 2021. Endangered Species Mapper for project site. Accessed online on at: https://ecos.fws.gov/ipac/.

WDFW. 2008. Washington Department of Fish and Wildlife. Priority Habitat and Species List. Olympia, Washington. 177 pp. Accessed online at: http://wdfw.wa.gov/conservation/phs/list/.

WDFW. 2021a. Washington Department of Fish and Wildlife Priority Habitat and Species Report for site. Accessed online at: http://apps.wdfw.wa.gov/phsontheweb/.

WDFW. 2021b. Washington State Department of Fish and Wildlife (WDFW) Salmonscape Maps. Accessed online at: http://apps.wdfw.wa.gov/salmonscape/map.html#.

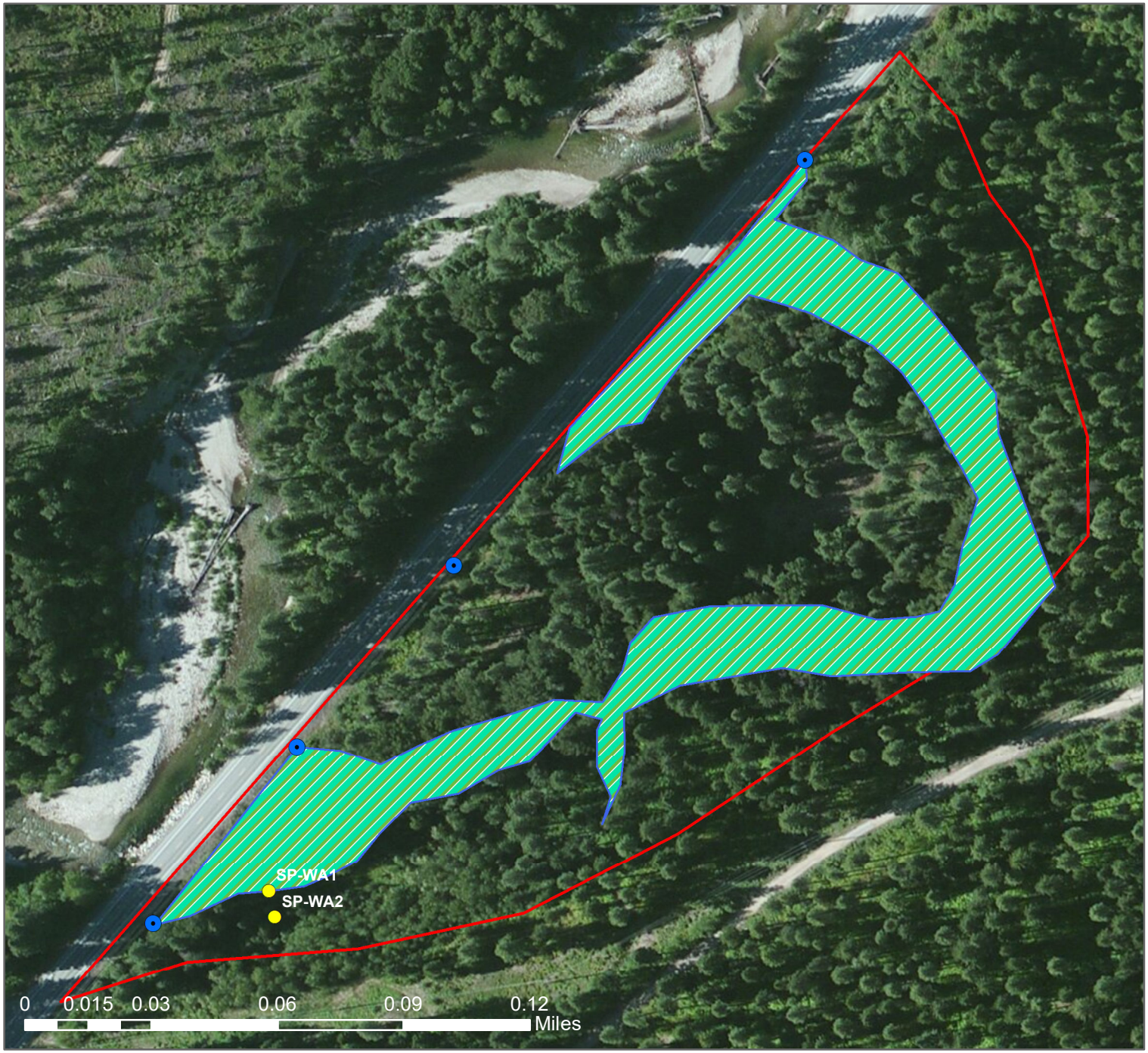
WSCC. 2000. Washington State Conservation Commission. Salmon, Steelhead and Bull Trout Habitat Limiting Factors. Water Resource Inventory Area 48 Final Report.

Appendix A — Existing Conditions Map

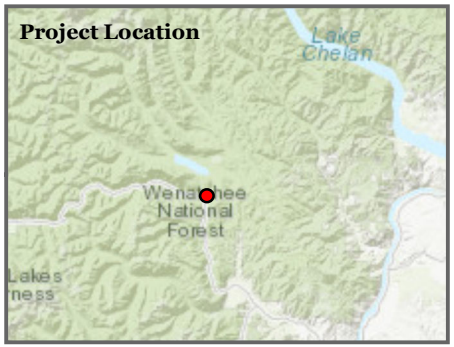
Nason Creek Revisit
Okanogan County, WA

November 3, 2021

NAD 1983 HARN State Plane
Washington North FIPS 4601 (US Ft)
Map Created By: G. Riggins, K. Ritchie



- Sample Plots
- Culverts
- Wetland A
- APE



hamer.

Data Sources: Data.gov, WA State Geospatial Open Data Portal, WSDOT GIS Data Portal, USDA: NRCS Geospatial Data Gateway, Washington State Department of Ecology, USFWS NWI Data Portal, WA DNR GIS Open Data, WA FWS Salmonscape, FEMA. gov NFHL Updated: 2020

Appendix B — Data Sheets

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

Project/Site: Nason Creek revisit City/County: Chelan Sampling Date: 2021-11-03

Applicant/Owner: Yakama fisheries State: Washington Sampling Point: SP-UP1

Investigator(s): Adam Crispin, Meg Harrison Section, Township, Range: 09, T26N, R17E

Landform (hillslope, terrace, etc.): Upland Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A 6 Lat: 47.7605266 Long: -120.7335133 Datum: WGS 84

Soil Map Unit Name: Wintoner silt loam, 3 to 8 percent slopes NWI classification: PSS/PEM

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Abies amabilis	20	✔	FACU
2. Prunus emarginata	15	✔	FACU
3. Populus balsamifera	10	✔	FAC
4.			
	45%	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Acer circinatum	60	✔	FAC
2. Mahonia aquifolium	10		FACU
3.			
4.			
5.			
	70%	= Total Cover	
Herb Stratum (Plot size: 5 ft r)			
1. Equisetum arvense	3	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	3%	= Total Cover	
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	_____	= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 60 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	73	x 3 =	219
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	118 (A)		399 (B)

Prevalence Index = B/A = 3.38

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes _____ No ✔

Remarks:

SOIL

Sampling Point: SP-UP1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0 - 6	10YR 3/2	100					Silt Loam	
6 - 16	10YR 4/2	100					Silt Loam	
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✔

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes _____ No ✔ Depth (inches): _____

Water Table Present? Yes _____ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✔

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

Remarks:

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

Project/Site: Nason Creek revisit City/County: Chelan Sampling Date: 2021-11-03

Applicant/Owner: Yakama fisheries State: Washington Sampling Point: SP-WA1

Investigator(s): Adam Crispin, Meg Harrison Section, Township, Range: 09, T26N, R17E

Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): A 6 Lat: 47.7605100 Long: -120.7335366 Datum: WGS 84

Soil Map Unit Name: Wintoner silt loam, 3 to 8 percent slopes NWI classification: PSS/PEM

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✔ No _____

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 ft r)	Absolute % Cover	Dominant Species?	Indicator Status
1. Alnus rubra	15	✔	FAC
2.			
3.			
4.			
	15% = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 ft r)			
1. Cornus alba	60	✔	FACW
2. Acer circinatum	10		FAC
3.			
4.			
5.			
	70% = Total Cover		
Herb Stratum (Plot size: 5 ft r)			
1. Equisetum arvense	40	✔	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	40% = Total Cover		
Woody Vine Stratum (Plot size: 30 ft r)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	65	x 3 =	195
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	125 (A)		315 (B)

Prevalence Index = B/A = 2.52

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

✔ 2 - Dominance Test is >50%

✔ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ 5 - Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ✔ No _____

Remarks:

SOIL

Sampling Point: SP-WA1

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

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0 - 5	7.5YR 2.5/1	100						
5 - 18	10YR 2/1	100					Silt Loam	
-								
-								
-								
-								
-								
-								

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✔ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present? Yes ___ No ✔ Depth (inches): _____

Water Table Present? Yes ___ No ✔ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✔ Depth (inches): _____

Wetland Hydrology Present? Yes ✔ No ___

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

Remarks:

Surface water was present in the Northwestern area of the wetland; depth varied between .5 and 1 foot.

Appendix C — Rating Forms

RATING SUMMARY – Eastern Washington

Name of wetland (or ID #): Wetland A Date of site visit: 11/2/2021

Rated by Adam Crispin Trained by Ecology? ☑ Yes ☐ No Date of training 11/13/2019

HGM Class used for rating Depressional Wetland has multiple HGM classes? ☑ Yes ☐ No

NOTE: Form is not complete with out the figures requested (*figures can be combined*).
Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions ☑ or special characteristics ☐)

1. Category of wetland based on FUNCTIONS

_____ **Category I** - Total score = 22 - 27
_____ **Category II** - Total score = 19 - 21
X **Category III** - Total score = 16 - 18
_____ **Category IV** - Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
		List appropriate rating (H, M, L)		
Site Potential	M	M	L	
Landscape Potential	M	M	H	
Value	M	M	M	**Total**
Score Based on Ratings	6	6	6	**18**

Score for each function based on three ratings (*order of ratings is not important*)

9 = H, H, H
8 = H, H, M
7 = H, H, L
7 = H, M, M
6 = H, M, L
6 = M, M, M
5 = H, L, L
5 = M, M, L
4 = M, L, L
3 = L, L, L

2. Category based on SPECIAL CHARACTERISTICS of wetland

CHARACTERISTIC	Category
Vernal Pools	
Alkali	
Wetland of High Conservation Value	
Bog and Calcareous Fens	
Old Growth or Mature Forest - slow growing	
Aspen Forest	
Old Growth or Mature Forest - fast growing	

Floodplain forest	
None of the above	

Maps and Figures required to answer questions correctly for Eastern Washington

Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	D 1.3, H 1.1, H 1.5	
Hydroperiods (including area of open water for H 1.3)	D 1.4, H 1.2, H 1.3	
Location of outlet (*can be added to map of hydroperiods*)	D 1.1, D 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	D 2.2, D 5.2	
Map of the contributing basin	D 5.3	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	D 3.3	

Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	R 2.4	
Map of the contributing basin	R 2.2, R 2.3, R 5.2	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of wetland vs. width of stream (*can be added to another figure*)	R 4.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	R 3.2, R 3.3	

Lake Fringe Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	L 1.1, L 4.1, H 1.1, H 1.5	
Plant cover of trees, shrubs, and herbaceous plants	L 1.2	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	L 2.2	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	L 3.1, L 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	L 3.3	

Slope Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes and classes of emergents	H 1.1, H 1.5	
Hydroperiods	H 1.2, H 1.3	
Plant cover of **dense** trees, shrubs, and herbaceous plants	S 1.3	
Plant cover of **dense, rigid** trees, shrubs, and herbaceous plants (*can be added to figure above*)	S 4.1	
Boundary of area within 150 ft of the wetland (*can be added to another figure*)	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	

Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which wetland is found (website)	S 3.3	

HGM Classification of Wetland in Eastern Washington

For questions 1 - 4, the criteria described must apply to the entire unit being rated.

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 - 4 apply, and go to Question 5.

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

- ☐ The vegetated part of the wetland is on the water side of the Ordinary High Water Mark of a body of permanent open water (without any plants on the surface) that is at least 20 ac (8 ha) in size
- ☐ At least 30% of the open water area is deeper than 10 ft (3 m)

☑ NO - go to 2 ☐ **YES** - The wetland class is **Lake Fringe** (Lacustrine Fringe)

2. 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**.

☑ NO - go to 3 ☐ **YES** - The wetland class is **Slope**

NOTE: Surface water does not pond in these type of wetlands except occasionally in very small and shallow depressions or behind hummocks (depressions are usually <3 ft diameter and less than 1 foot deep).

3. 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 10 years.

☑ NO - go to 4 ☐ **YES** - The wetland class is **Riverine**

NOTE: The Riverine wetland can contain depressions that are filled with water when the river is not flooding.

4. 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 5 ☑ **YES** - The wetland class is **Depressional**

5. 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 - 4 APPLY TO DIFFERENT AREAS IN THE WETLAND 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 the wetland unit being scored.

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 HGM 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.

HGM classes within the wetland unit being rated	HGM Class to use in rating
Slope + Riverine	Riverine
Slope + Depressional	Depressional
Slope + Lake Fringe	Lake Fringe
Depressional + Riverine (the riverine portion is within the boundary of depression)	Depressional
Depressional + Lake Fringe	Depressional
Riverine + Lake Fringe	Riverine

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

NOTES and FIELD OBSERVATIONS:
Wetland has multiple classes but is overall Depressional.

DEPRESSIONAL WETLANDS

Water Quality Functions - Indicators that the site functions to improve water quality

		Points (only 1 score per box)
D 1.0. Does the site have the potential to improve water quality?		
D 1.1. Characteristics of surface water outflows from the wetland:		
Wetland has no surface water outlet	points = 5	
☑ Wetland has an intermittently flowing outlet	points = 3	3
☐ Wetland has a highly constricted permanently flowing outlet	points = 3	
Wetland has a permanently flowing, unconstricted, surface outlet	points = 1	
D 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (*use NRCS definitions of soils*)	Yes = 3 No = 0	0
D 1.3. Characteristics of persistent vegetation (Emergent, Scrub-shrub, and/or Forested Cowardin classes)		
Wetland has persistent, ungrazed, vegetation for > $^2/_3$ of area	points = 5	
Wetland has persistent, ungrazed, vegetation from $^1/_3$ to $^2/_3$ of area	points = 3	5
Wetland has persistent, ungrazed vegetation from $^1/_{10}$ to < $^1/_3$ of area	points = 1	
Wetland has persistent, ungrazed vegetation < $^1/_{10}$ of area	points = 0	
D 1.4. Characteristics of seasonal ponding or inundation:		
This is the area of ponding that fluctuates every year. Do not count the area that is permanently ponded.		
Area seasonally ponded is > ½ total area of wetland	points = 3	0
Area seasonally ponded is ¼ - ½ total area of wetland	points = 1	
Area seasonally ponded is < ¼ total area of wetland	points = 0	
Total for D 1	Add the points in the boxes above	**8**

Rating of Site Potential If score is: ☐**12 - 16 = H** ☑**6 - 11 = M** ☐**0 - 5 = L** *Record the rating on the first page*

D 2.0. Does the landscape have the potential to support the water quality function of the site?		
D 2.1. Does the wetland receive stormwater discharges?	Yes = 1 No = 0	1
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0	0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 0	0
D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1 - D 2.3?		0
Source	Yes = 1 No = 0	
Total for D 2	Add the points in the boxes above	**1**

Rating of Landscape Potential If score is: ☐**3 or 4 = H** ☑**1 or 2 = M** ☐**0 = L** *Record the rating on the first page*

D 3.0. Is the water quality improvement provided by the site valuable to society?		
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, or lake that is on the 303(d) list?	Yes = 1 No = 0	0
D 3.2.Is the wetland in a basin or sub-basin where water quality is an issue in some aquatic resource [303(d) list, eutrophic lakes, problems with nuisance and toxic algae]?	Yes = 1 No = 0	1
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (*answer YES if there is a TMDL for the drainage or basin in which the wetland is found*)?	Yes = 2 No = 0	0
Total for D 3	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑**1 = M** ☐**0 = L** *Record the rating on the first page*

DEPRESSIONAL WETLANDS

Hydrologic Functions - Indicators that the site functions to reduce flooding and erosion

Points (only 1 score per box)

D 4.0. Does the site have the potential to reduce flooding and erosion?

D 4.1. Characteristics of surface water outflows from the wetland:

- Wetland has no surface water outlet — points = 8
- ☑ Wetland has an intermittently flowing outlet — points = 4
- ☐ Wetland has a highly constricted permanently flowing outlet — points = 4
- Wetland has a permanently flowing unconstricted surface outlet — points = 0

(*If outlet is a ditch and not permanently flowing treat wetland as "intermittently flowing"*)

4

D 4.2. Depth of storage during wet periods: *Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or deepest part (if dry).*

- Seasonal ponding: > 3 ft above the lowest point in wetland or the surface of permanent ponding — points = 8
- Seasonal ponding: 2 ft - < 3 ft above the lowest point in wetland or the surface of permanent ponding — points = 6
- ☐ The wetland is a headwater wetland — points = 4
- ☐ Seasonal ponding: 1 ft - < 2 ft — points = 4
- Seasonal ponding: 6 in - < 1 ft — points = 2
- Seasonal ponding: < 6 in or wetland has only saturated soils — points = 0

2

Total for D 4 — Add the points in the boxes above: **6**

Rating of Site Potential If score is: ☐ **12 - 16 = H** ☑ **6 - 11 = M** ☐ **0 - 5 = L** *Record the rating on the first page*

D 5.0. Does the landscape have the potential to support the hydrologic functions of the site?

D 5.1. Does the wetland receive stormwater discharges? Yes = 1 No = 0 — **1**

D 5.2. Is > 10% of the area within 150 ft of the wetland in land uses that generates runoff? Yes = 1 No = 0 — **0**

D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses ? Yes = 1 No = 0 — **0**

Total for D 5 — Add the points in the boxes above: **1**

Rating of Landscape Potential If score is: ☐ **3 = H** ☑ **1 or 2 = M** ☐ **0 = L** *Record the rating on the first page*

D 6.0. Are the hydrologic functions provided by the site valuable to society?

D 6.1. The wetland is in a landscape that has flooding problems.

Choose the description that best matches conditions around the wetland being rated. *Do not add points. Choose the highest score if more than one condition is met.*

The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds), AND

- Flooding occurs in sub-basin that is immediately down-gradient of wetland — points = 2
- Surface flooding problems are in a sub-basin farther down-gradient — points = 1

☐ The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. — points = 0

Explain why

☐ There are no problems with flooding downstream of the wetland — points = 0

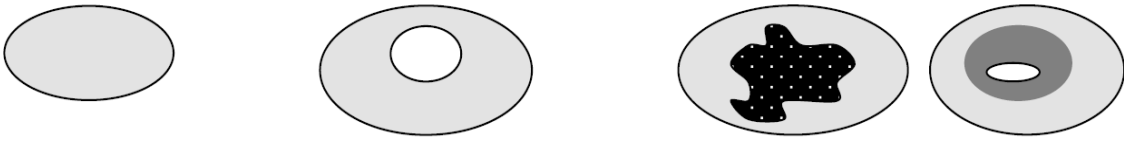
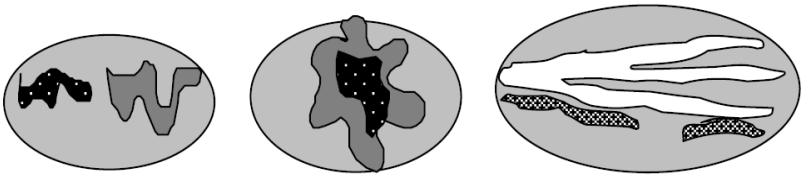
1

D 6.2. Has the site been identified as important for flood storage or flood conveyance

0

in a regional flood control plan?	Yes = 2 No = 0	0
Total for D 6	Add the points in the boxes above	**1**

Rating of Value If score is: ☐ **2 - 4 = H** ☑ **1 = M** ☐**0 = L** *Record the rating on the first page*

These questions apply to wetlands of all HGM classes. **HABITAT FUNCTIONS** - Indicators that site functions to provide important habitat	(only 1 score per box)
H 1.0. Does the wetland have the potential to provide habitat for many species?	
H 1.1. Structure of plant community: *Check the Cowardin vegetation classes present and categories of emergent plants. Size threshold for each category is > = ¼ ac or > = 10% of the wetland if wetland is < 2.5 ac.* ☐ Aquatic bed ☐ Emergent plants 0 - 12 in (0-30 cm) high are the highest layer and have > 30% cover ☐ Emergent plants > 12 - 40 in (> 30-100 cm) high are the highest layer with >30% cover ☐ Emergent plants > 40 in (> 100 cm) high are the highest layer with >30% cover ☑ Scrub-shrub (areas where shrubs have > 30% cover) ☑ Forested (areas where trees have > 30% cover) 4 or more checks: points = 3 3 checks: points = 2 2 checks: points - 1 1 check: points = 0	1
H 1.2. Is one of the vegetation types Aquatic Bed? Yes = 1 No = 0	0
H 1.3. Surface water H 1.3.1. Does the wetland have areas of open water (without emergent or shrub plants) over at least ¼ ac **OR** 10% of its area during the March to early June **OR** in August to the end of September? *Answer YES for Lake Fringe wetlands.* ☐ Yes = 3 points & go to H 1.4 No = go to H 1.3.2 H 1.3.2. Does the wetland have an intermittent or permanent, and unvegetated stream within its boundaries, or along one side, over at least ¼ ac or 10% of its area? *Answer yes only if H 1.3.1 is No.* ☐ Yes = 3 No = 0	0
H 1.4. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft^2. *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, Russian olive, Phragmites, Canadian thistle, yellow-flag iris, and saltcedar (Tamarisk)* # of species 5 Scoring: > 9 species: points = 2 4 - 9 species: points = 1 < 4 species: points = 0	1
H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among types of plant structures (described in H 1.1), and unvegetated areas (open water or mudflats) is high, moderate, low, or none. *Use map of Cowardin and emergent plant classes prepared for questions H 1.1 and map of open water from H 1.3. If you have four or more plant classes or three classes and open water, the rating is always high.*  **None** = 0 points **Low** = 1 point **Moderate** = 2 points  All three diagrams in this row are **HIGH** = 3 points	2

Riparian braided channels with 2 classes	

H 1.6. Special habitat features: *Check the habitat features that are present in the wetland. The number of checks is the number of points.* ☐ Loose rocks larger than 4 in OR large, downed, woody debris (> 4 in diameter) within the area of surface ponding or in stream. ☐ Cattails or bulrushes are present within the wetland. ☐ Standing snags (diameter at the bottom > 4 in) in the wetland or within 30 m (100 ft) of the edge. ☑ Emergent or shrub vegetation in areas that are permanently inundated/ponded. ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 45 degree slope) OR signs of recent beaver activity ☑ Invasive species cover less than 20% in each stratum of vegetation (*canopy, sub-canopy, shrubs, herbaceous, moss/ground cover*)	2
Total for H 1 — Add the points in the boxes above	**6**

Rating of Site Potential If Score is: ☐ **15 - 18 = H** ☐ **7 - 14 = M** ☑ **0 - 6 = L** *Record the rating on the first page*

H 2.0. Does the landscape have the potential to support habitat functions of the site?	
H 2.1 Accessible habitat (only area of habitat abutting wetland). If total accessible habitat is: *Calculate:* 28 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 32.5% > 1/3 (33.3%) of 1 km Polygon — points = 3 20 - 33% of 1 km Polygon — points = 2 10 - 19% of 1 km Polygon — points = 1 < 10 % of 1 km Polygon — points = 0	2
H 2.2. Undisturbed habitat in 1 km Polygon around wetland. *Calculate:* 82 % undisturbed habitat + (9 % moderate & low intensity land uses / 2) = 86.5% Undisturbed habitat > 50% of Polygon — points = 3 Undisturbed habitat 10 - 50% and in 1 - 3 patches — points = 2 Undisturbed habitat 10 - 50% and > 3 patches — points = 1 Undisturbed habitat < 10% of 1 km Polygon — points = 0	3
H 2.3 Land use intensity in 1 km Polygon: > 50% of 1 km Polygon is high intensity land use — points = (-2) Does not meet criterion above — points = 0	0
H 2.4. The wetland is in an area where annual rainfall is less than 12 in, and its water regime is not influenced by irrigation practices, dams, or water control structures. *Generally, this means outside boundaries of reclamation areas, irrigation districts, or reservoirs* Yes = 3 No = 0	0
Total for H 2 — Add the points in the boxes above	**5**

Rating of Landscape Potential If Score is: ☑ **4 - 9 = H** ☐ **1 - 3 = M** ☐ **< 1 = L** *Record the rating on the first page*

H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated*. Site meets ANY of the following criteria: — points = 2 ☐ It has 3 or more priority habitats within 100 m (see Appendix B) ☐ It provides habitat for Threatened or Endangered species (any plant or animal on state or federal lists) ☐ It is mapped as a location for an individual WDFW species ☐ It is a Wetland of High Conservation Value as determined by the Department of Natural Resources ☐ It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan	1

Site has 1 or 2 priority habitats within 100 m (see Appendix B)	points = 1	
Site does not meet any of the criteria above	points = 0	

Rating of Value If Score is: ☐ **2 = H** ☑ **1 = M** ☐ **0 = L** *Record the rating on the first page*

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Please determine if the wetland meets the attributes described below and circle the appropriate category. NOTE: A wetland may meet the criteria for more than one set of special characteristics. Record all those that apply. NOTE: All wetlands should also be characterized based on their functions.

Wetland Type	Category
Check off any criteria that apply to the wetland. List the category when the appropriate criteria are met.	
SC 1.0. Vernal Pools Is the wetland **less than 4000 ft^2**, and does it meet at least **two** of the following criteria? ☐ Its only source of water is rainfall or snowmelt from a small contributing basin and has no groundwater input. ☐ Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals. *If you find perennial, obligate, wetland plants, the wetland is probably NOT a vernal pool.* ☐ The soil in the wetland is shallow [< 1 ft (30 cm) deep] and is underlain by an impermeable layer such as basalt or clay. ☐ Surface water is present for less than 120 days during the wet season. ☐ Yes - Go to **SC 1.1** ☑ No = **Not vernal pool** SC 1.1. Is the vernal pool relatively undisturbed in February and March? ☐ Yes – Go to **SC 1.2** ☑ No = **Not a vernal pool with special characteristics**	
SC 1.2. Is the vernal pool in an area where there are at least 3 separate aquatic resources within 0.5 mi (other wetlands, rivers, lakes etc.)? ☐ Yes = **Category II** ☑ No = **Category III**	
SC 2.0. Alkali wetlands Does the wetland meet **one** of the following criteria? ☐ The wetland has a conductivity > 3.0 mS/cm. ☐ The wetland has a conductivity between 2.0 and 3.0 mS, and more than 50% of the plant cover in the wetland can be classified as "alkali" species (see Table 4 for list of plants found in alkali systems). ☐ If the wetland is dry at the time of your field visit, the central part of the area is covered with a layer of salt. **OR** does the wetland unit meet two of the following three sub-criteria? ☐ Salt encrustations around more than 75% of the edge of the wetland ☐ More than ¾ of the plant cover consists of species listed on Table 4 ☐ A pH above 9.0. All alkali wetlands have a high pH, but please note that some freshwater wetlands may also have a high pH. Thus, pH alone is not a good indicator of alkali wetlands. ☐ Yes = **Category I** ☑ No = **Not an alkali wetland**	
SC 3.0. Wetlands of High Conservation Value (WHCV) SC 3.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? ☐ Yes - Go to **SC 3.2** ☑ No - Go to **SC 3.3** SC 3.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? ☐ Yes = **Category I** ☑ No = **Not WHCV** SC 3.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf ☐ Yes - **Contact WNHP/WDNR and to SC 3.4** ☑ No = **Not WHCV** SC 3.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website? ☐ Yes = **Category I** ☑ No = **Not WHCV**	

SC 4.0. Bogs and Calcareous Fens

Does the wetland (or any part of the wetland unit) meet both the criteria for soils and vegetation in bogs or calcareous fens? Use the key below to identify if the wetland is a bog or calcareous fen. ***If you answer yes you will still need to rate the wetland based on its functions.***

SC 4.1. Does an area within the wetland have organic soil horizons (i.e., layers of organic soil), either peats or mucks, that compose 16 in or more of the first 32 in of the soil profile? *See Appendix C for a field key to identify organic soils.*

☐ Yes - Go to **SC 4.3** ☑ No - Go to **SC 4.2**

SC 4.2. Does an area within the wetland have organic soils, either peats or mucks, that are less than 16 in 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 **SC 4.3** ☑ No = **Is not a bog for rating**

SC 4.3. Does an area within the wetland have more than 70% cover of mosses at ground level AND at least 30% of the total plant cover consists of species in Table 5?

☐ Yes = **Category I bog** ☑ No - Go to **SC 4.4**

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 in deep. If the pH is less than 5.0 and the plant species in Table 5 are present, the wetland is a bog.

SC 4.4. Is an area with peats or mucks forested (> 30% cover) with subalpine fir, western red cedar, western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the species (or combination of species) listed in Table 5 provide more than 30% of the cover under the canopy?

☐ Yes = **Category I bog** ☑ No - Go to **SC 4.5**

SC 4.5. Do the species listed in Table 6 comprise at least 20% of the total plant cover within an area of peats and mucks?

☐ Yes = **Is a Calcareous Fen for purpose of rating** ☑ No - Go to **SC 4.6**

SC 4.6. Do the species listed in Table 6 comprise at least 10% of the total plant cover in an area of peats and mucks, AND one of the two following conditions is met:

☐ Marl deposits [calcium carbonate ($CaCO_3$) precipitate] occur on the soil surface or plant stems

☐ The pH of free water is ≥ 6.8 AND electrical conductivity is ≥ 200 uS/cm at multiple locations within the wetland

☐ Yes = **Is a Category I calcareous fen** ☑ No = **Is not a calcareous fen**

SC 5.0. Forested Wetlands

Does the wetland have an area of forest rooted within its boundary that meets **at least one** of the following three criteria? (*Continue only if you have identified that a forested class is present in question H*

☑ The wetland is within the 100 year floodplain of a river or stream

☐ Aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species

☐ There is at least ¼ ac of trees (even in wetlands smaller than 2.5 ac) that are “mature” or “old-growth” according to the definitions for these priority habitats developed by WDFW (*see definitions in question H3.1*)

☐ Yes - Go to **SC 5.1** ☑ No = **Not a forested wetland with special characteristics**

SC 5.1. Does the wetland have a forest canopy where more than 50% of the tree species (by cover) are slow growing native trees (*see Table 7*)?

☐ Yes = **Category I** ☑ No - Go to **SC 5.2**

SC 5.2. Does the wetland have areas where aspen (*Populus tremuloides*) represents at least 20% of the total cover of woody species?

☐ Yes = **Category I** ☑ No - Go to **SC 5.3**

SC 5.3. Does the wetland have at least ¼ acre with a forest canopy where more than 50% of the tree species (by cover) are fast growing species (*see Table 7*)?

☐ Yes = **Category II** ☑ No - Go to **SC 5.4**

SC 5.4. Is the forested component of the wetland within the 100 year floodplain of a river or stream?

☑ Yes = **Category II** ☐ No = **Not a forested wetland with special characteristics**

Category of wetland based on Special Characteristics *Choose the highest rating if wetland falls into several categories* If you answered No for all types, enter “Not Applicable” on Summary Form	**Cat. II**

Appendix B: WDFW Priority Habitats in Eastern Washington

Priority habitats listed by WDFW (see complete descriptions of WDFW priority habitats, and the counties in which they can be found, in: Washington Department of Fish and Wildlife. 2008. Priority Habitat and Species List. Olympia, Washington. 177 pp.
http://wdfw.wa.gov/publications/00165/wdfw00165.pdf or access the list from here:
http://wdfw.wa.gov/conservation/phs/list/

Count how many of the following priority habitats are within 330 ft (100 m) of the wetland unit: ***NOTE**: This question is independent of the land use between the wetland unit and the priority habitat.*

- ☐ **Aspen Stands**: Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- ☐ **Biodiversity Areas and Corridors**: Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- ☐ **Old-growth/Mature forests**: Old-growth east of Cascade crest – Stands are highly variable in tree species composition and structural characteristics due to the influence of fire, climate, and soils. In general, stands will be >150 years of age, with 10 trees/ac (25 trees/ha) that are > 21 in (53 cm) dbh, and 1-3 snags/ac (2.5-7.5 snags/ha) that are > 12-14 in (30-35 cm) diameter. Downed logs may vary from abundant to absent. Canopies may be single or multi-layered. Evidence of human-caused alterations to the stand will be absent or so slight as to not affect the ecosystem's essential structures and functions. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; 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 and 80-160 years old east of the Cascade crest.
- ☐ **Oregon White Oak**: Woodland 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 – see web link above*).
- ☐ **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- ☐ **Caves**: 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.
- ☐ **Cliffs**: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- ☐ **Talus**: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- ☑ **Snags and Logs**: 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 > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.
- ☐ **Shrub-steppe**: A nonforested vegetation type consisting of one or more layers of perennial bunchgrasses and a conspicuous but discontinuous layer of shrubs (see Eastside Steppe for sites with little or no shrub cover).
- ☐ **Eastside Steppe**: Nonforested vegetation type dominated by broadleaf herbaceous flora (i.e., forbs), perennial bunchgrasses, or a combination of both. Bluebunch wheatgrass (*Pseudoroegneria spicata*) is often the prevailing cover component along with Idaho fescue (*Festuca idahoensis*), Sandberg bluegrass (*Poa secunda*), rough fescue (*F. campestris*), or needlegrasses (*Achnatherum* spp.).
- ☐ **Juniper Savannah**: All juniper woodlands.

Note: All vegetated wetlands are by definition a priority habitat but are not included in this list because they are addressed elsewhere.