5.4 SPECIAL WETLANDS INCLUDED IN THE RATING SYSTEM

This rating system was designed to differentiate between wetlands based on their sensitivity to disturbance, their significance, their rarity, our ability to replace them, and the functions they provide. The first four criteria can be considered as values that are somewhat independent of the functions provided by a wetland. Questions 4 – 9 provide the information needed to identify and rate these "special" wetlands. These types of wetlands have an importance or value that may supercede their functions. **You should determine whether the wetland being rated meets any of these conditions as well as answering the questions about functions.**

Question 4. Vernal pools – *Is the wetland a vernal pool?* Vernal pools are precipitation based, seasonal wetlands. For the purposes of this rating system they include only "scabrock" and "rainpool" vernals. Pools where surface water ponds for short periods that are found in forested areas, or surrounded by trees and shrubs, are not considered vernal pools in the context of this rating system. Figures 38 and 39 show typical vernal pools in the scabland area.

Vernal pools are either a category II or III, depending on their location in the landscape.

Figure 38: A scabrock vernal pool above Lake Lenore. Photo taken 7/14/99.

Figure 39: A scabrock vernal pool with water still in it. The pool is in a grazed pasture.

To be classified as a vernal pool the wetland should 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.* The wetland will typically lie in areas where the basalt has been exposed by the ice age floods. It has formed in a small surface depression in the basalt and does not have an outlet.
- *Wetland plants are typically present only in the spring; the summer vegetation is typically upland annuals.* The water is present in the wetland for only short periods of time, usually less than 120 days. Wetland plants will be found only during the time of standing water or immediately afterwards. NOTE: If you find perennial, "obligate," wetland plants the wetland is probably NOT a vernal pool.
- *The soils in the wetland are shallow (< 30 cm or 1ft deep) and are underlain by an impermeable layer such as basalt or clay.* You can determine the depth of the soil by digging a small hole with a tile spade. Determining if the impermeable layer is basalt should be easy (can't dig any further), but identifying a clay layer is harder. You may have to take some of the soil between your fingers, add water, and feel if it is "greasy" and smooth (without grit). If in doubt, use the "ribbon test" for clay (Appendix B).
- *Surface water is present for less than 120 days during the "wet" season.* Estimating the duration of surface water in a vernal pool wetland is difficult unless one visits the wetland several times and notes the time at which the wetland fills and the time it dries out. Information about the drying and wetting cycles in the wetland may sometimes be obtained from local residents or frequent visitors to the wetland.

*4.1 Is the wetland a vernal pool in an area where **there are at least** 3 other wetlands of any type, or bodies of open water, within 0.5 miles?*

If the wetland being rated meets the criteria for vernal pools described in the section above, determine if there are any other wetlands or aquatic resources within ½ mile. Aquatic resources include lakes, reservoirs, wasteways with open water, rivers, and other wetlands. Use an aerial photograph or topographic map to answer this question if you cannot visit or see the area around the wetland.

<u>If there are at least 3 other aquatic resources nearby the vernal pool is rated as a Category II wetland.</u>

*4.21 Is the wetland a vernal pool in an area where **there are less than** 3 other wetlands of any type, or bodies of open water, within 0.5 miles?*

<u>If the wetland is vernal pool with fewer than three aquatic resources within ½ mile it is rated a Category III wetland.</u>

***Question 5. Alkali wetlands** – Is the wetland an alkali wetland?* Alkali wetlands are wetlands with a high salt concentration. They have formed where groundwater comes to the surface and evaporates. The evaporation over many years has concentrated the salts that were present in the groundwater. These wetlands cannot be replicated through compensatory mitigation, are rare on the landscape, and need to be rated separately because the questionnaire on functions does not adequately capture their unique role in the ecosystem.

<u>All alkali wetlands are Category I wetlands.</u> A wetland is alkali if it meets **one** of the following three criteria.

- *The wetland has conductivity greater than 3.0 mS.* Conductivity is measured with a "conductivity" meter, and the units are "Siemens" or "Mhos". The units of measures are equivalent. For example, 3.0 milliSiemens is the same as 3.0 millimhos. Measure the conductivity at least 1-2 feet from the edge of surface water. If the weather is hot the conductivity at the immediate edge may be much higher because of local evaporation. If you do not have a conductivity meter, you will have to determine if the wetland is alkali using the other criteria listed below.
- *The wetland has a conductivity between 2.0 - 3.0 mS, and its plant cover in vegetated areas is more than 50% alkali plant species (see Table1 for a list of common species found in alkali wetlands).* The plant list in Table 1 is not exclusive, and the criterion can be met by any plant species known to be salt tolerant.

> Conductivity measures the ability of a solution to conduct an electric current between two electrodes. With an increasing amount of ions (i.e. salts) present in the liquid, the liquid will have a higher conductivity.
> Normal units of measurement are:
> 1 micromho (µmho) = 1 microSiemen (µS),
> 1 millimho (mmho) = 1 milliSiemens (mS) = 1,000 µS

- *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?* (Figure 40)

Figure 40: An alkali wetland where surface is covered with salt encrustations. In this wetland the salt was 4-6 inches deep.

Table 1: Plants species that are tolerant of high salt concentration and are often dominant in alkali wetlands.

Latin Name	**Common Name**
Scirpus maritimus	bulrush
Juncus balticus	Baltic rush
Distichls spicata	saltgrass
Potentilla gracilis, P. anserina	Cinquefoils
Salicornia rubra S. virginica	Glasswort, Saltwort
Puccinellia lemmonii	Alkali grass
Bassia hyssopifolia	Smother weed
Eleocharis rostellata	Beaked spike-rush

- *Wetlands meeting two of the following three sub-criteria are also classified as alkali.*
  - *Salt encrustations around more than 3/4 of the edge of the wetland*. Alkali wetlands will usually have a rim of salt crystals around their edge as the water in the wetland evaporates. Some freshwater wetlands have a fairly high salt content and are on the verge of being alkali. Such borderline wetlands will have an occasional patch of salt encrusted around its edge. Any wetland, however, where the encrustations are found around more than 3/4 of the edge should be alkali. The eight alkali wetlands found during the function assessment project all met this criterion and had their conductivity confirmed by the meter. Figure 41 gives an example of an alkali wetland with a salt ring around it.
  - *More than ¾ of the plant cover consists of species listed on Table 1.*

- *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. The pH can be measured using a pH meter or paper tabs with indicators on them (pH paper).

Figure 41: Salt encrustations around and alkali wetland.

Question 6. Natural Heritage Wetlands – *Is the wetland on record with the Washington Natural Heritage Program as a high quality native wetland?*

Wetlands that are natural heritage sites are Category I wetlands.

Some information about the Heritage program can be accessed through the internet. http://www.wa.gov/dnr/htdocs/fr/nhp/refdesk/4_refix.htm . Information about sites can be obtained by purchasing a CD containing the Washington Natural Heritage Program Geographic Information System (WNHP GIS) Data Set. Another option is to contact the Natural Heritage Program for information about your site or call 360-902-1667 or email sandra.moody@wadnr.gov.

Question 7. Bogs – *Is the wetland a bog?* If the wetland meets the criteria for bogs described below, it is a Category I wetland. Bogs cannot be replicated through compensatory mitigation and are very sensitive to disturbance.

To qualify as a bog for the purpose of this rating system a wetland has to be relatively undisturbed, have organic soils at least 16 inches deep (unless it is on bedrock), and meet **one** of the following conditions:

- Sphagnum mosses are a common ground cover (>30%) in area of organic soils AND the cover of non-native species (see Appendix C) is less than 10%.
- In the absence of a sphagnum ground cover, herbaceous wetland plants ("emergent" species) are the only vegetation class present (shrubs or trees < 10% cover) in the area of organic soils, AND at least one of the species listed in Table 2 is a dominant or co-dominant, AND the cover of non-native species (see Appendix C) less than 10%.

Although many common wetland plant species are found in bogs, there are some species that are characteristic of these wetlands in Washington and can be used as indicators of this wetland type (Table 2). If any of these species are found as a

dominant or co-dominant (in terms of percent cover) in a wetland, treat it as a bog. NOTE: Some bogs in Washington State are forested, and the moss ground cover is not easily seen. If you are rating a mature forested wetland, always check the soil to determine whether you are on a peat soil consisting of mosses.

Table 2: Characteristic plants of bogs

Sphagnum spp.	Sphagnum moss
Ledum groenlandicum	Labrador tea
Vaccinium oxycoccos	Bog cranberry
Kalmia occidentalis	Bog laurel
Eriophorum chamissonis	Cottongrass
Myrica gale	Sweetgale
Picea sitchensis	Sitka spruce
Carex rostrata	Beaked sedge
Carex pluriflora	Several flowered sedge
Carex pauciflora	Few-flower sedge
Betula glandulosa	Bog birch
Cladina rangiferina	reindeer lichen
Drosera rotundifolia	Sundew
Andromeda polifolia	Bog rosemary
Empetrum nigrum	Black crowberry
Rhynchospora alba	White beakrush

If in doubt, it is important to consult someone with expertise in identifying bogs. The intent of the criteria is to include in Category I those bogs that have relatively undisturbed native plant communities.

Bogs are considered to be relatively undisturbed if they have not been physically disturbed (drained, ditched, filled, cultivated, mined, etc.), have not had their nutrient status significantly altered, have an undeveloped buffer, and have less than a 10% cover of non-native species (see Appendix C for a list of non-native species in Washington). Other indicators or disturbance include:

- Upstream watershed that has more than 5% impervious surfaces.
- Wetland is ditched and water flow is not obstructed.
- Wetland has been graded, filled, logged.
- Water in wetland is controlled.
- Wetland is grazed.

Question 8. Forested Wetlands – *Does the wetland contain a native forest?*

Forested wetlands can be Category I or II wetlands.

Forested wetlands, for the purpose of this rating system, are defined as wetlands that have at least ¼ acre of native trees within their boundaries that meet these two criteria:

- The trees provide a canopy over at least 30% of the ground within the extent of their distribution (at least ¼ acre).
- The trees are at least 20 ft. tall
- More than ½ of the trees (by percent cover) are native (e.g. alder, cedar, hemlock, cottonwood, some willow species, etc. see Table 3)

Not all forested wetlands are given a special rating. The questions below describe the criteria by which a forested wetland is assigned a rating in addition to its functions.

8.1. Is the forested wetland in the "channel migration zone" of a river or stream?

The channel migration zone (CMZ) is the area where the active channel of a stream is prone to movement over time within the floodplain. If a CMZ has not been mapped for the river or stream you can assume that the CMZ is spatially equivalent to the 100-year flood plain, i.e. the floodplain area subject to a one percent or greater chance of flooding in any given year.

Evidence of active movement can be provided from aerial photos or specific channel and valley bottom characteristics. A time frame of one hundred years was chosen because aerial photos, old maps, and field evidence can be used to evaluate movement in this time frame.

Forested wetlands in the channel migration zone are Category II wetlands based on their location. These wetlands, however, may often be a Category I based on functions.

Forested wetlands are further categorized based on the growth rate of the trees and the maturity of the trees. You will need to determine if the species with the largest amount of cover (>50%) are slow growing or fast growing. Table 3 lists the tree species found in eastern Washington forested wetlands based on their growth rates.

8.2 Does the wetland have at least ¼ acre of slow growing forest that meet the criteria for "mature forest" or "old-growth forest" priority habitats as defined by the Washington State Department of Fish and Wildlife?

Forested wetlands with slow growing trees that meet the criteria are Category I.

The criteria for the two priority habitats, as defined by WDFW as of October 2002, are as follows:

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 25 trees/ha (10 trees/acre)> 53 cm (21 in) dbh, and 2.5-7.5 snags/ha (1 - 3 snags/acre) > 30-35 cm (12-14 in) 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 53 cm (21 in) dbh; crown cover may be less that 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.

8.2 Does the wetland have at least ¼ acre of fast growing forest that meet the criteria for "mature forest" or "old-growth forest" priority habitats as defined by the Washington State Department of Fish and Wildlife?

Forested wetlands with fast-growing trees that meet the WDFW criteria for priority forest habitat are Category II.

See definitions for old-growth, and mature forests above.

Table 3: List of slow growing and fast growing native trees found in eastern Washington wetlands.

SLOW GROWING WETLAND TREES	FAST GROWING WETLAND TREES
Cedar – Western red (*Thuja plicata*) Alaska Yellow (*Chamaecyparis nootkatensis*)	Alders – Red (*Alnus rubra*) Thin-leaf (*A. tenuifolia*)
Pine spp. mostly "white" pine (*Pinus monticola*)	Cottonwoods – Narrow-leaf (*Populus angustifolia* Black (*P. balsamifera*)
Hemlock – western (*Tsuga heterophylla*)	Willows- Peach-leaf (*Salix amygdaloides*) Hooker's (*S. hookeriana*) Sitka (*S. sitchensis*) Pacific (*S. lasiandra*)
Englemann Spruce (*Picea engelmannii*)	Aspen (*Populus tremuloides*)

If only part of the wetland is forested, and the category based on functions is II or III, the wetland may be assigned a dual rating as described in Section 4.3.

5.5 RATING THE WETLAND

Each wetland can have two ratings: one resulting from its score for the functions and one resulting from special characteristics it may have. The first page of the data form contains a box for recording each rating that should be filled out after completing the form. Pick the "highest" category of the two when assigning an overall category for the wetland being rated.

The first page of the data form also contains a table in which you can summarize the hydrogeomorphic class of the wetland and whether it falls into one of the "special" types of wetlands.

REFERENCES CITED

Adamus P.R., L.T. Stockwell, E.J. Clarain, M.E. Morrow, L.P. Rozas, and R.D. Smith. 1991. Wetland Evaluation Technique (WET); Volume I: Literature Review and Evaluation Rationale. Technical Report WRP-DE-2, U.S. Army Engineer Waterways Experiment Station, Vicksburg MS.

Bjork, C.R. 1997. Vernal Pools of the Columbia Platewetland, Eastern Washington. Unpublished report for The Nature Conservancy. November 1997.

Brassard, P.; Waddington, J.M.; Hill, A.R.; and Roulet, N.T. 2000. Modelling groundwater-surface water mixing in a headwater wetland: implications for hydrograph separation. Hydrological Processes 14:2697-2710.

Brinson, M. M. 1993. A hydrogeomorphic classification for wetlands. Technical Report WRP-DE-4. US Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.

Brinson, M. M. 1995. The HGM approach explained. *National Wetlands Newsletter* November-December: 7-13.

Chapman, D.W. 1966. The relative contributions of aquatic and terrestrial primary producers to the trophic relations of stream organisms. pp. 116-130 in: Organism-substrate relationships in streams. Pymantuning Lab. Ecol. Spec. Publ. No. 4. University of Pittsburgh, Pittsburgh, PA.

Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. US Fish and Wildlife Service FWS/OBS-79/31, 103 pp.

Crowe, E.A., A.J. Busacca, J.P. Reganold, and B.A. Zamora. 1994. Vegetation zones and soil characteristics in Vernal Pools in the Channeled Scabland of Eastern Washington. Great Basin Naturalist 54(3):324-247.

Delaplane, K.S. 2000. Crop pollination by bees. CABI Publishing, New York, 352pp.

Dvorak, J. and E.P.H. Best 1982. Macro-invertebrate communities associated with the macrophytes of Lake Vechten: Structural functional relationships. Hydrobiologia 95:115-126.

Fennessey, M.S., C.C. Brueske, and W.J. Mitch. 1994. Sediment deposition patterns in restored freshwater wetlands using sediment traps. Ecological Engineering 3:409-428.

Grigal, D.F., and K.N. Brooks, 1997. Forest management impacts on undrained peatlands in North America. In: Northern Forested Wetlands: Ecology and Management. Lewis Publisher, New York, 369-384.

Hammer, D.A. 1989. Protecting water quality with wetlands in river corridors. In: J.A. Kusler and S. Daly (eds). Wetlands and River Corridor Management. Association of State Wetland Managers, Berne, NY.

Hartmann, G.F., J.C. Scrivener, and M.J. Miles. 1996. Impacts of logging in Carnation Creek, a high energy coastal stream in British Columbia, and their implications for restoring fish habitat. Canadian Journal of Fisheries and Aquatic Science 53:237-251

Horner, R. 1992. Constructed Wetlands for Storm Runoff Water Quality Control - Course Materials. Center for Urban Water Resources Management, University of Washington, Seattle, WA.

Hruby, T, S. Stanley, T. Granger, T. Duebendorfer, R. Friesz, B. Lang, B. Leonard, K. March, and A.

Wald. 2000. Methods for Assessing Wetland Functions. Volume II, Part 1: Assessment Methods – Depressional Wetlands in the Columbia Basin of Eastern Washington. WA State Department of Ecology Publication #00-06-47.

Hruby, T. 1999. Assessments of wetland functions: What they are and what they are not. Environmental Management 23:75-85.

Hruby, T., S. Stanley, T. Granger, T. Duebendorfer, R. Friesz, B. Lang. B. Leonard, K. March, and A. Wald. 2000. Methods for Assessing Wetland Functions. Volume II: Depressional Wetlands in the Columbia Basin of Eastern Washington. Part 1: Assessment Methods. WA State Department of Ecology Publication #00-06-47.

Hruby, T., T. Granger, K. Brunner, S. Cooke, K. Dublonica, R. Gersib, T. Granger, L. Reinelt, K. Richter, D. Sheldon, E. Teachout, A. Wald, and F. Weinmann. 1999. Methods for Assessing Wetland Functions. Volume 1: Riverine and Depressional Wetlands in the Lowlands of Western Washington. Part 1: Assessment Methods. WA State Department of Ecology Publication #99-115.

Knops, J.M.H., D. Tilman, N.M. Haddad, S. Naeem, C.E. Mitchell, J. Haarstad, M.E. Ritchie, K.M. Howe, P.B. Reich, E. Siemann, and J. Groth. 1999. Effects of plant species richness on invasion dynamics, disease outbreaks, insect abundances and diversity. Ecology Letters 2:286-293.

Lewis, J., R. Sylvia-Mori; E.T. Keppeler; R.R. Ziemer. 2001. Pages 85-125, in: Mark S. Wigmosta and Steven J. Burges (eds.) Land Use and Watersheds: Human Influence on Hydrology and Geomorphology in Urban and Forest Areas. Water Science and Application Volume 2, American Geophysical Union, Washington, D.C.

Lodge, D.M. 1985. Macrophyte-gastropod associations: Observations and experiments on macrophyte choice by gastropods. Freshwater Biology 15:695-708.

McMillan, A. 2000. The Science of Wetland Buffers and Its Implications for the Management of Wetlands. Master's Thesis. Evergreen State University, June, 2000.

Mitsch, W.J. and J.G. Gosselink. 1993. Wetlands. Van Nostrand Reinhold Co., New York. Second Edition 722pp.

Moore, D.R., P.A. Keddy, C.L. Gaudet, and I.C. Wisheu, 1989. Conservation of wetlands: Do infertile wetlands deserve a higher priority. Biological Conservation 47, 203-218.

Nussbaum R.A,. E.D. Brodie Jr., and R.M. Storm 1983. Amphibians and Reptiles of the Pacific Northwest. Moscow, ID: University of Idaho Press. 332 p.

O'Connor, M. and G. Watson. 1998. Geomorphology of channel migration zones and implications for riparian forest management. Unpublished report.

Reinelt, L.E. and R.R. Horner 1995. Pollutant removal from stormwater runoff by palustrine wetlands based on comprehensive budgets. Ecological Engineering, 4:77-97.

Rigg, G.B. 1958. Peat Resources of Washington. Bulletin No. 44. Division of Mines and Geology, Washington State Department of Conservation.

Seaburn C.N.L., D.C. Seburn, and C.A. Paszkowski 1997. Northern leopard frog (Rana pipiens) dispersal in relation to habitat. In Green DM, editor. Amphibians in decline: Canadian studies of a global problem. Herpetological Conservation 1:64–72.

Washington Department of Natural Resources (WDNR). 1989. State of Washington Natural Heritage Plan. Olympia, WA. 164 pages.

Williamson, A.K., M.D. Munn, S.J. Ryker, R.J. Wagner, J.C. Ebert, and A.M. Vanderpool. 1998. Water Quality in the Central Columbia Plateau, Washington and Idaho, 1992-1995. U.S. Geological Survey Circular #1144.

Zedler, P.H. 1987. The ecology of southern California vernal pools: a community profile. U.S. Fish and Wildlife Service Biology Report 85(7.11). 136 pp.

APPENDIX A

Members of the technical review team for revising the Washington State Wetland Rating System for Eastern Washington.

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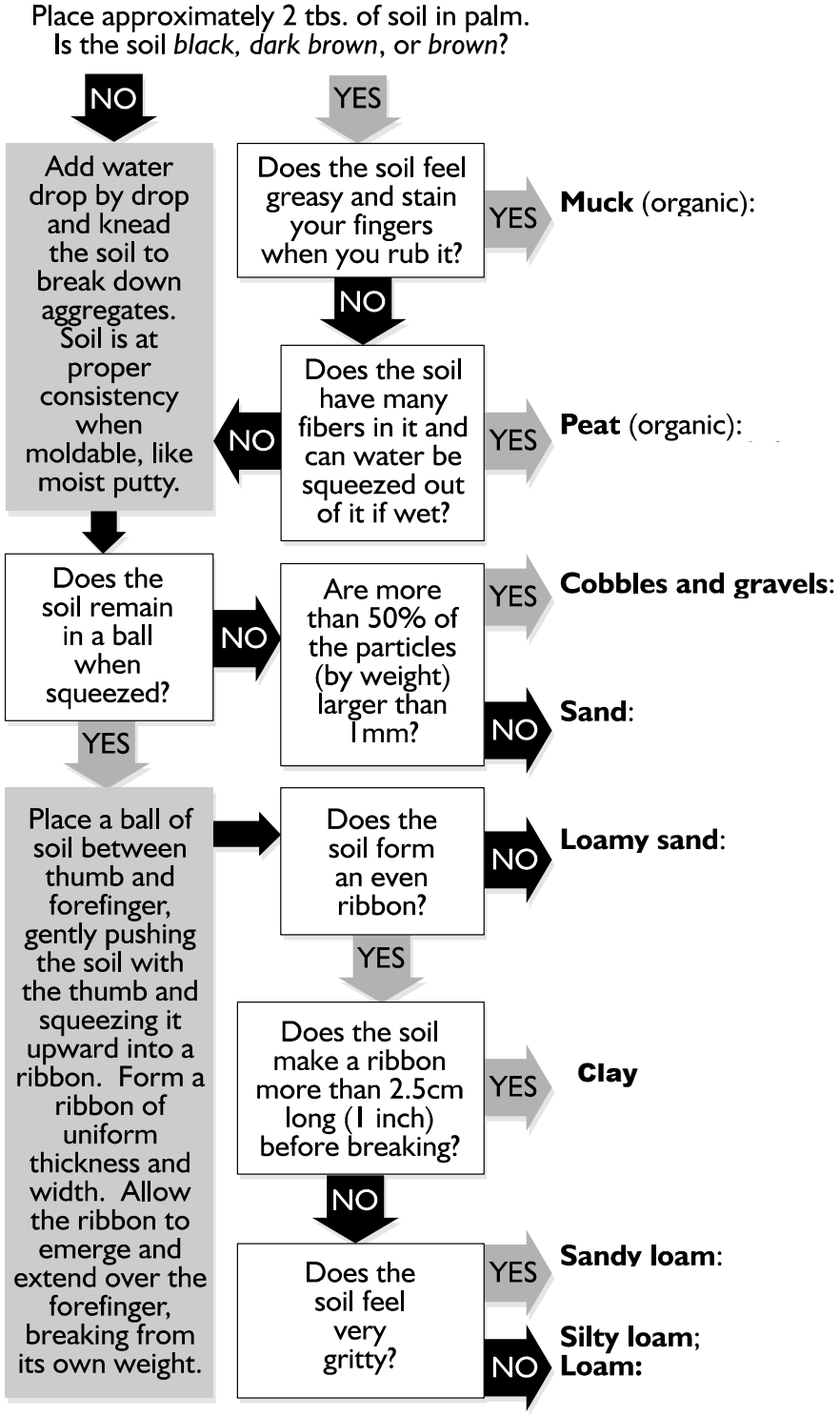
APPENDIX B

Analyzing the type of soil present in the wetland.



APPENDIX C

Common Non-native Plants Often Found in Washington's Wetlands

SPECIES NAME	***COMMON NAME***
Agropyron repens	Quackgrass
Alopecurus pratensis, A. aequalis	Meadow foxtail
Arcticum minus	Burdock
Bromus tectorum, B. rigidus, B. brizaeformis, B. secalinus, B. japonicus, B. mollis, B. commutatus, B. inermis, B. erectus	Bromes
Cenchrus longispinus	Sanbur
Centaurea solstitialis, C. repens, C. cyanus, C. maculosa, C. diffusa	Knapweeds
Cirsium vulgare, C. arvense	Thistles
Cynosurus cristasus, C. echinatus	Dogtail
Cytisus scoparius	Scot's broom
Dactylis glomerata	Orchardgrass
Dipsacus sylvestris	Teasel
Digitaria sanguinalis	Crabgrass
Echinochloa crusgalli	Barnyard grass
Euphorbia peplus, E. esula	Spurge
Festuca arundinacea, F. pratensis, F. rubra	Fescue
Holcus lanatus, H. mollis	Velvet grass
Hordeum jabatum	Foxtail barley
Hypericum perforatum	St. John's Wort
Iris pseudacorus	Yellow iris
Ilex aquifolium	English holly
Lolium perenne, L. multiflorum, L. temulentum	Ryegrass
Lotus corniculatus	Birdsfoot trefoil
Lythrum salicaria	Purple loosestrife
Matricaria matricarioides	Pineapple weed
Medicago sativa	Alfalfa
Melilotus alba, M. offiinalis	Sweet clover
Phalaris arundinacae	Reed canarygrass
Phleum pratense	Timothy
Phragmites australis	Common reed
Poa compressa, P. palustris, P. pratensis	Bluegrass
Polygonium aviculare, P. convolutus, P. cuspidatum, P. lapathifolium, P. persicaria, P. sachalineuse	Knotweeds
Ranunculus reprens	Creeping buttercup
Rubus procerus (discolor), R. lacinatus, R. vestitus, R. macrophyllus, R. leucodermis	Non-native blackberries
Salsola kali	Russian thistle
Setaria viridis	Green bristlegrass
Sisymbrium altissimum, S. loeselii, S. officinale	Tumblemustards
Tanacetum vulgare	Tansy
Trifolium dubium, T. pratense, T. repens, T. arvense, T. subterraneum, T. hybridium	Clovers
Misc. cultivated species	Wheat, corn, barley, rye, etc.

WETLAND RATING FORM – EASTERN WASHINGTON
DRAFT – July 2002

Name of wetland (if known): _____
Location: 1/4 S: _____ of 1/4 S: _____ SEC: _____ TWNSHP: _____ RNGE: _____

Person(s) Rating Wetland: _____ Affiliation: _____
Date of site visit: _____

SUMMARY OF RATING

Category based on FUNCTIONS provided by wetland

I___ II___ III___ IV___

Category based on SPECIAL CHARACTERISTICS of wetland

I___ II___ III___ Does not Apply___

"Highest" Category

Check the appropriate type and class of wetland being rated.

Wetland Type		Wetland Class	
Vernal Pool		Depressional	
Alkali		Riverine	
Natural Heritage Wetland		Lake Fringe	
Bog		Slope	
Forested			
None of the above			

Does the wetland 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 Need Special Protection, and That Are Not Included in the Rating	YES	NO
A1. Is the wetland in an area (e.g. GIS polygon) that has been documented as a habitat for any **State or Federally listed Threatened or Endangered plant or animal species**? For the purposes of this rating system, "documented" means the wetland is on the appropriate state or federal database.		
A2. Does the wetland contain individuals of **Federal or State-listed Threatened or Endangered plant or animal species**? (information that is not on the state databases in #1 above)		
A3. Does the wetland contain individuals of **Priority species** listed by the WDFW for the state?		
A4. Does the wetland have a **local significance** in addition to its functions. 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.		

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. This simplifies the questions needed to answer how well the wetland functions. The Hydrogeomorphic Class of a wetland can be determined using the key below.

CLASSIFICATION KEY

1. Does the wetland **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) where at least 20 acres (8 ha) are permanently inundated (ponded or flooded);

___At least 30% of the open water area is deeper than 3 m (10 ft)?

NO – go to Step 2

YES – The wetland class is **Lake Fringe (Lacustrine Fringe)**

2. Does the wetland **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 type 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 Step 3

YES – The wetland class is **Slope**

3. Is the wetland in a valley or stream channel where it gets inundated by overbank flooding from that stream or river? In general, the flooding should occur at least once every ten years to answer "yes." *The wetland can contain depressions that are filled with water when the river is not flooding.*

NO - go to Step 4

YES – The wetland class is **Riverine**

4. Is the wetland in a topographic depression, outside areas that are inundated by overbank flooding, in which water ponds, or is saturated to the surface, at some time of the year. *This means that any outlet, if present, is higher than the interior of the wetland.*

NO – go to Step 5

YES – The wetland class is **Depressional**

5. Your wetland seems to be difficult to classify. 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. Sometimes we find characteristics of several different hydrogeomorphic classes within one wetland boundary. If you have a wetland with several HGM classes present within its boundaries use the following table to identify the appropriate class to use for the rating system.

HGM Classes Within Wetland	Class to Use in Rating
Slope + Riverine	**Riverine**
Slope + Depressional	**Depressional**
Slope + Lake Fringe	**Lake Fringe**
Depressional + Riverine along stream within boundary	**Depressional**
Depressional + Lake Fringe	**Depressional**

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.

CATEGORIZATION BASED ON FUNCTIONS PROVIDED

	WATER QUALITY FUNCTIONS - Indicators that wetland functions to improve water quality	Points
	1.1 Does the wetland have the opportunity to improve water quality? 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? *Note which of the following conditions provide the sources of pollutants.* — Grazing in the wetland or within 150ft — Wetland intercepts groundwater within the Reclamation Area — Untreated stormwater discharges to wetland — Farming within 300 feet of wetland — A stream or culvert discharges into wetland that drains developed areas, residential areas, farmed fields, roads, or clear-cut logging — A riverine wetland with a contributing basin where human activities have raised levels of sediment, toxic compounds, or nutrients of the river water — Residential or urban areas are within 150 ft of wetland — Other_____ **YES** multiply score in 1.2, 1.3, 1.4 , or 1.5 **by 2** **NO** multiply score in 1.2, 1.3, 1.4 , or 1.5 **by 1**	**x 2** **or** **x 1**
	Does the wetland have the potential to improve water quality? *Answer <u>only</u> the questions that are appropriate for the hydrogeomorphic class of the wetland*	
D	**1.2 DEPRESSIONAL WETLANDS**	
D	1.2.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet - points = 5 Wetland has an intermittently flowing , or highly constricted, outlet – points = 3 Wetland has a permanently flowing surface outlet – points = 1	
D	1.2.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES points = 3 NO points = 0	
D	1.2.3 Characteristics of persistent vegetation (**emergent, shrub, and/or forest**): Wetland has persistent, ungrazed, vegetation >2/3 of area points = 5 Wetland has persistent, ungrazed, vegetation >1/3 of area points = 3 Wetland has persistent, ungrazed vegetation >1/10 of area points = 1 Wetland has persistent, ungrazed vegetation <1/10 of area points = 0	

D	1.2.4 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 Area seasonally ponded is > ¼ total area of wetland points = 1 Area seasonally ponded is < ¼ total area of wetland points = 0 NOTE: *See text for indicators of seasonal and permanent inundation/flooding.*	
D	*Add the points in the boxes above*	
	Opportunity Multiplier (from question 1.1)	**x_____**
D	**1.2 TOTAL - Depressional Wetlands** For **Water Quality Improvement Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	
R	**1.3 RIVERINE WETLANDS**	
R	1.3.1 Area of surface depressions within the riverine wetland that can trap sediments during a flooding event: Depressions cover >1/3 area of wetland points = 6 Depressions cover > 1/10 area of wetland points = 3 Depressions present but cover < 1/10 area of wetland points = 1 No depressions present points = 0	
R	1.3.2 Characteristics of the vegetation in the wetland: Forest or shrub > 2/3 the area of the wetland points = 10 Forest or shrub > 1/3 area of the wetland points = 5 Ungrazed, emergent plants > 2/3 area of wetland points = 5 Ungrazed emergent plants > 1/3 area of wetland points = 2 Forest, shrub, and ungrazed emergent < 1/3 area of wetland points = 0	
R	*Add the points in the boxes above*	
	Opportunity Multiplier (from question 1.1)	**x_____**
R	**1.3 TOTAL -Riverine Wetlands -** For **Water Quality Improvement Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	

Comments:

L	**1.4 LAKE FRINGE WETLANDS**	
L	1.4.1 Average width of vegetation along the lakeshore (do not include aquatic bed): Vegetation is more than 33ft (10m) wide points = 6 Vegetation is more than 16 (5m) wide points = 3 Vegetation is more than 6ft (2m) wide points = 1	
L	1.4.2 Characteristics of the vegetation in the wetland: Emergent plants cover >90% of the vegetated area *(do not include any open water in your estimate of coverage)* points = 6 Emergent plants cover >2/3 of the vegetated area points = 4 Emergent plants cover >1/3 of the vegetated area points = 3 Any persistent vegetation in > 2/3 vegetated area points = 3 Any persistent vegetation in > 1/3 of the vegetated area points = 1 Aquatic bed cover > 2/3 of the vegetated area points = 0	
L	*Add the points in the boxes above*	
	Opportunity Multiplier (from question 1.1)	**x_____**
L	**1.4 TOTAL -Lake Fringe Wetlands** For **Water Quality Improvement Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	
S	**1.5 SLOPE WETLANDS**	
S	1.5.1 Characteristics of average slope of wetland: Slope is1% or less *(a 1% slope has a 1 foot vertical drop in elevation for every 100 ft horizontal distance*) points = 3 Slope is 1% - 2% points = 2 Slope is 2% - 5% points = 1 Slope is greater than 5% points = 0	
S	1.5.2 The soil 2 inches below the surface is clay, organic, or smells anoxic (hydrogen sulfide or rotten eggs). YES = 3 points NO = 0 points	
S	1.5.3 Characteristics of the vegetation in the wetland that trap sediments and pollutants: *Choose the points appropriate for the description that best fit conditions in the wetland. Dense vegetation means you have trouble seeing the soil surface.* Dense, ungrazed, herbaceous vegetation > 90% of the wetland area points = 6 Dense, ungrazed, herbaceous vegetation > 1/2 of area points = 3 Dense, ungrazed, herbaceous vegetation > 1/4 of area points = 1 Does not meet any of the criteria above for herbaceous vegetation points = 0	
S	*Add the points in the boxes above*	
	Opportunity Multiplier (from question 1.1)	**x_____**
S	**1.5 TOTAL Slope Wetlands -** For **Water Quality Improvement Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	

	2. HYDROLOGIC FUNCTIONS - Indicators that wetland functions to reduce flooding, stream degradation, and shoreline erosion	Points
	2.1 Does the wetland have the opportunity to reduce flooding and erosion? **For Depressional, Riverine, or Slope Wetlands**: Is the wetland in a landscape position 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? *Note which of the following conditions apply.* — Wetland is in a headwater of a river or stream — Wetland is in the floodplain of a river or stream that has flooding — Wetland has an outlet that drains to a river or stream that has flooding — Other_____ *(Answer NO if the major source of water is irrigation return flow or is controlled by a reservoir)* **OR** for **Lake-Fringe Wetlands:** Are there features along the shore that will be impacted if the shoreline erodes? **YES** multiply score in 2.2, 2.3, 2.4 , or 2.5 **by 2** **NO** multiply score in 2.2, 2.3, 2.4 , or 2.5 **by 1**	**x 2 or x 1**
	Does the wetland have the potential to reduce flooding and erosion? *Answer only the questions that are appropriate for the hydrogeomorphic class of the wetland*	
D	**2.2 DEPRESSIONAL WETLANDS**	
D	2.2.1 Characteristics of surface water flows out of the wetland: Wetland has no surface water outlet points = 8 Wetland has an intermittently flowing, or highly constricted, outlet points = 4 Wetland has a permanently flowing surface outlet points = 0	
D	2.2.2 Depth of storage during wet periods: *Estimate the height of ponding above the surface of the wetland (see text for description of measuring height). In wetlands with permanent ponding, the surface is the lowest elevation of permanent water)* Marks of ponding are at least 3 ft above the surface points = 8 The wetland is a "headwater" wetland" *(see text)* points = 8 Marks are at least 2 ft from surface points = 6 Marks are at least 1ft from surface points = 4 Marks are at least 6 in. ft from surface points = 2 No marks above 6 in. or wetland has only saturated soils points = 0	
D	*Add the points in the boxes above*	
	Opportunity Multiplier (from question 2.1)	**x_____**
D	**2.2 TOTAL Depressional Wetlands-** For **Hydrologic Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	

R	**2.3 RIVERINE WETLANDS**	
R	2.3.1 Characteristics of the overbank storage the wetland provides: *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 of width of wetland/ width of stream.* If the ratio is more than 2 points = 10 If the ratio is between 1 – 2 points = 8 If the ratio is ½ – 1 points = 4 If the ratio is ¼ - ½ points = 2 If the ratio is < ¼ points = 1	
R	2.3.2 Characteristics of vegetation that slow down water velocities during floods: *Treat large woody debris as "forest or shrub". Choose the points appropriate for the best description.* Forest or shrub for more than 2/3 the area of the wetland. points = 6 Forest or shrub for >1/3 area OR Emergent plants > 2/3 area points = 4 Forest or shrub for > 1/10 area OR Emergent plants > 1/3 area points = 2 Vegetation does not meet above criteria points = 0	
R	*Add the points in the boxes above*	
	Opportunity Multiplier (from question 2.1)	**x_____**
R	**2.3 TOTAL Riverine Wetlands -** For **Hydrologic Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	

Comments:

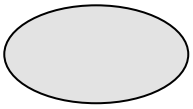
L	**2.4 LAKE FRINGE WETLANDS**	
L	2.4.1 Average width and characteristics of vegetation along the lakeshore (do not include aquatic bed): *(choose the the highest scoring description that matches conditions in the wetland)* > ¾ of fringe vegetation is shrubs or trees at least 33 ft (10m) wide points = 6 > ¾ of fringe vegetation is shrubs or trees at least 6 ft. (2 m) wide points = 4 > ¼ of fringe vegetation is shrubs or trees at least 33 ft (10m) wide points = 4 Fringe vegetation is at least 6 ft (2m) wide points = 2 Fringe vegetation is less than 6 ft (2m) wide points = 0	
L	*Add the points in the box above*	
	Opportunity Multiplier (from question 1.1)	**x_____**
L	**2.4 TOTAL Lake Fringe Wetlands -** Final score for **Hydrologic Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	
S	**2.5 SLOPE WETLANDS**	
S	2.5.1 Characteristics of vegetation that reduce the velocity of surface flows during storms. *Choose the points appropriate for the description that best fit conditions in the wetland.* Dense, ungrazed, **rigid** vegetation covers > 90% of the area of the wetland. (stems of plants should be thick enough (usually > 1/8in), or dense enough, to remain erect during surface flows) points = 6 Dense, ungrazed, **rigid** vegetation > 1/2 area of wetland points = 3 Dense, ungrazed, **rigid** vegetation > 1/4 area points = 1 More than 1/4 of area is grazed, mowed, tilled or veg. is not erect points = 0	
S	2.5.2 Characteristics of slope wetland that holds back small amounts of flood flows: The slope wetland has small surface depressions that can retain water over at least 10% of its area. YES points = 2 NO points = 0	
S	*Add the points in the boxes above*	
	Opportunity Multiplier (from question 2.1)	**x_____**
S	**2.5 TOTAL Slope Wetlands -** For **Hydrologic Functions** Multiply the sum above by the "opportunity multiplier" ***Add score to total on p. 14***	

Comments:

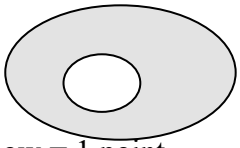
3. HABITAT FUNCTIONS - Indicators that wetland functions to provide important habitat	**Points**
These questions apply to wetlands of all HGM classes.	
3.1 Vegetation structure: *Check the types of vegetation present if the type covers more than 10% of the area of the wetland or ¼ acre.* ____Aquatic bed ____Emergent plants 0-12 inches high (0 – 30 cm) ____Emergent plants 12 – 40 inches high (30 – 100cm) ____Emergent plants > 40 inches high (> 100 cm) ____Scrub/shrub (areas where shrubs have >30% cover) ____Forested (areas where trees have >30% cover) *Add the number of vegetation types that qualify. If you have:* 4-6 types *record* points = 3 3 types points = 2 2 types points = 1 1 type points = 0	
3.2 Is one of the vegetation types "aquatic bed"? YES = 1 point NO = 0 points	
3.3 Surface Water: 3.3.1 Does the wetland have areas of "open" water (without emergent or shrub plants) over at least ¼ acre or 10% of its area during the spring (March – early June) OR in early fall (August – end of September)? *Note: answer YES for Lake Fringe wetlands* YES = 3 points & **go to 3.4** NO = go to 3.3.2 3.3.2 Does the wetland have an intermittent or permanent stream within its boundaries or along one side that has an unvegetated bottom (answer yes only if 3.3.1 is NO)? YES = 3 points NO = 0 points	
3.4 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 Eurasean Milfoil, reed canarygrass, purple loosestrife, Russian Olive, Phragmites ,Canadian Thistle, Yellow-flag Iris, and Salt Cedar (Tamarisk)* If you counted: > 10 species points = 2 4-9 species points = 1 < 4 species points = 0 points	

3.5 Interspersion of habitats

Decided from the diagrams below whether interspersion between types of vegetation (described in 13.1), or vegetation types and unvegetated areas (can include open water or mudflats) is high, medium, low, or none.

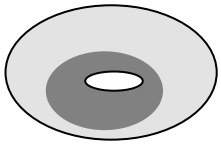


None = 0 points

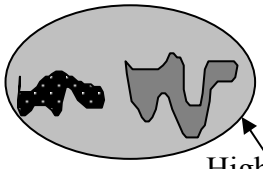


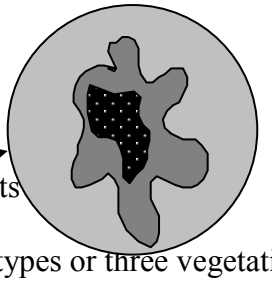
Low = 1 point

Moderate = 2 points



Moderate = 2 points





High = 3 points

NOTE: If you have four or more vegetation types or three vegetation types and open water the rating is always "high".

3.6 Special Habitat Features

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.

____Loose rocks larger than 4" within the area of surface ponding or in stream.

____Large, downed, woody debris within the wetland (>4in. diameter).

____Cattails or Bulrushes are present within the wetland.

____Standing snags (diameter at the bottom > 4 inches) in the wetland or within 30 m (100 ft) of the edge.

____Emergent or shrub vegetation in areas that are permanently inundated/ponded. *The presence of "yellow flag" Iris is a good indicator of vegetation in areas permanently 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

____ **TOTAL** Habitat Features

Comments:

INDICATORS OF OPPORTUNITY	
3.7 Buffers *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."* • 100 m (330ft) of relatively undisturbed naturally vegetated areas, rocky areas, or open water >95% of circumference. No developed areas within undisturbed part of buffer**. (relatively undisturbed also means no-grazing)** **Points = 5** • 100 m (330 ft) of relatively undisturbed naturally vegetated areas, rocky areas, or open water > 50% circumference. **Points = 4** • 50 m (170ft) of relatively undisturbed naturally vegetated areas, rocky areas, or open water >95% circumference. **Points = 4** • 100 m (330ft) of relatively undisturbed naturally vegetated areas, rocky areas, or open water > 25% circumference, . **Points = 3** • 50 m (170ft) of relatively undisturbed naturally vegetated areas, rocky areas, or open water for > 50% circumference. **Points = 3** **If buffer does not meet any of the three criteria above** • No paved areas or buildings within 25 m (80ft) of wetland > 95% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** • No paved areas or buildings within 50m of wetland for >50% circumference. Light to moderate grazing, or lawns are OK. **Points = 2** • Heavy grazing in buffer. **Points = 1** • Vegetated buffers are <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**. • Buffer does not meet any of the criteria above. **Points = 1**	
3.8 Wet Corridors 3.8.1 Is the wetland part of a relatively undisturbed and unbroken vegetated corridor with surface water or flowing water throughout most of the year (> 9 months/yr)? (*dams*, *heavily used gravel roads*, *paved roads, fields tilled to edge of stream, or pasture to edge of stream are considered breaks in the corridor*). YES = 4 points (go to 3.9) NO = go to 3.8.2 3.8.2 1 Is the wetland part of a relatively undisturbed and unbroken, vegetated corridor, with water flowing seasonally OR a Lake Fringe wetland? YES = 2 points (go to 3.9) NO go to 3.8.3 3.8.3 Is the wetland within a 1/2 mile of any permanent stream, seasonal stream, or lake (*do not include man-made ditches*)? YES = 1 point NO = 0 points	

3.9 Near or adjacent to other priority habitats listed by WDFW Which of the following priority habitats are within 330ft (100m) of the wetland? *(see text for a more detailed description of these priority habitats)* ____**Aspen Stands:** Pure or mixed stands of aspen greater than 0.8 ha (2 acres). ____**Cliffs:** Greater than 7.6 m (25 ft) high and occurring below 5000 ft. ____**Old-growth forests:** (east of Cascade crest): In general, stands will be >150 years of age, with 25 trees/ha (10 trees/acre)> 53 cm (21 in) dbh, and 2.5-7.5 snags/ha (1 - 3 snags/acre) > 30-35 cm (12-14 in) diameter. ____**Mature forests:** Stands with average diameters exceeding 53 cm (21 in) dbh; crown cover may be less that 100%; decay, 80 - 160 years old east of the Cascade crest. ____**Prairies and Steppe:** Relatively undisturbed areas (as indicated by dominance of native plants) where grasses and/or forbs form the natural climax plant community. ____**Shrub-steppe:** Tracts of land consisting of plant communities with one or more layers of perennial grasses and a conspicuous but discontinuous layer of shrubs. ____**Talus:** 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. ____**Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages ____**Oregon white Oak:** Woodlands Stands of pure oak or oak/conifer associations where canopy coverage of the oak component of the stand is 25%. **2 or more Priority Habitats = 4 points** **1 Habitat = 2 points**	
3.10 Landscape *(choose the **one** description of the landscape around the wetland that best fits*) The wetland is in an area where annual rainfall is less than 12 inches, and its water regime is not influenced by irrigation practices, dams, or water control structures? (*Generally, this means outside boundaries of reclamation areas, irrigation district, or reservoirs)* points = 5 There are at least 3 other wetlands within ½ mile, and the connections between them are relatively undisturbed (light grazing and lake shore OK, but connections should NOT be bisected by paved roads, fill, fields, or other development). points = 5 There are at least 3 other wetlands within ½ mile, BUT the connections between them are disturbed? points = 2 There is at least 1 wetland within ½ mile. points = 1 There are no wetland within ½ mile points = 0	

3.11 Indicator of reduced habitat functions Do the areas of open water in the wetland have a resident population of carp (see text for indicators of the presence of carp)? YES = **- 5 points** NO = 0 points	*Points will be subtracted*
***3**. SCORE FOR INDICATORS OF HABITAT FUNCTIONS – add the points in all the boxes above*	
Comments:	

SCORE FOR WATER QUALITY IMPROVEMENT FUNCTIONS	
SCORE FOR HYDROLOGIC FUNCTIONS	
SCORE FOR HABITAT FUNCTIONS	
TOTAL points for functions	
Category I = Score >70 **Category II = Score 51-69** **Category III = Score 30-50** **Category IV = Score < 30**	Category

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

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

Wetland Type	Yes	No
4.0 Vernal pools Vernal pools are precipitation-based, seasonal wetlands. To be typed as a vernal pool the wetland should 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. *NOTE: If you find perennial, "obligate", wetland plants the wetland is probably NOT a vernal pool* • The soil in the wetland are shallow (< 30 cm or 1ft 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.	Y Y Y Y	N N N N
4.1 Is the wetland a vernal pool in an area where there are at least 3 other wetlands of any type, or bodies of open water, within 0.5 miles? YES = Category II NO = go to 4.2 4.2 Is the wetland a vernal pool in an area where there are fewer than 3 other wetlands of any type, or bodies of open water, within 0.5 miles? YES = Category III	**Cat. II** **Cat. III**	**N**
5.0 Alkali wetlands The wetland meets **one** of the following two criteria • The wetland has a conductivity > 3.0 mS/cm. • The wetland has a conductivity between 2.0 - 3.0 mS, and its plant cover in vegetated areas is more than 50% alkali plant species (see Table…). **OR** • The wetland meets two of the following three sub-criteria. o Salt encrustations around more than 80% of the edge of the wetland o More than ¾ of the plant cover consists of species listed on Table ___ o 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.	Y Y Y y y y	N N N n n n
5.1 Is the wetland an alkali wetland? YES = Category I	**Cat. I**	**N**

6.0 Natural Heritage Wetlands 6.1 Is the wetland on record with the Washington Natural Heritage Program as a high quality native wetland? Checked data CD?_____ Wrote letter to DNR ?____ YES = Category I	**Cat. I**	**N**
7.0 Bogs The wetland is relatively undisturbed, has organic soils (NRCS definition of organic) deeper than 16 inches, and **one** of the following conditions is met: • Sphagnum mosses are a common ground cover (>30%) in area of organic soils AND the cover of invasive species (see Table ...) is less than 10% in moss area. • Herbaceous wetland plants ("emergent" species) are the only vegetation class present (shrubs or trees < 10% cover) in the area of organic soils, AND at least one of the species listed in Table 2 is a dominant or co-dominant, AND the cover of invasive species (see Appendix __) less than 10%?	 Y Y	 N N
7.1 Does the wetland have an area of bog that meets the conditions listed above. YES = Category I	**Cat. I**	**N**
8.0 Forested Wetlands Does the wetland have at least ¼ acre of native trees (such as alder, cedar, hemlock, cottonwood, and some willow species, etc.) within its boundary that meet these **three** criteria: • The trees provide a canopy over at least 30% of the ground within the extent of their distribution (at least ¼ acre). • The trees are at least 20ft tall • Indicators of a "mature" forest — Some trees with diameters greater than 21 in dbh; — presence of dead or dying trees, snags, large downed material, or — trees that are over 80 years	 Y y y	 N n n
8.1 Does the wetland have at least 1/4 acre of slow growing forest (slow growing forests include those where more than 50% of the tree species (by cover) are White Pine, Western Red Cedar, Spruce YES = Category I NO = go to 8.2 8.2 Does the wetland have at least ¼ acre of fast growing forest (fast growing forests include those where more than 50% of the tree species (by cover) are Cottonwood, Alder, Willow, ….. YES = Category II	**Cat. I** **Cat. II**	**N**

Category of wetland based on Special Characteristics *Choose the "highest" rating if wetland falls into several categories.* If you answered N for all types enter "Not Applicable" on p.1	