Washington State Wetlands Rating System

Western Washington

Second Edition

August 1993
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printed on recycled paper

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Preface

This document is a revision of the *Washington State Wetland Rating System,* published by the Washington Department of Ecology in October 1991. The original document was published with an understanding that modifications would be incorporated as we increase our understanding of wetland systems, and as the rating system is used by many different people.

The need to revise the original version became apparent as we trained different groups in the use of the rating system. Several textual inconsistencies and ambiguities were identified that made a consistent application of the ratings by different people difficult Furthermore, Thurston County undertook a detailed analysis of the wetlands in over 50 square miles of the county using the State rating system, and the Army Corps of Engineers rated 128 wetlands in the Mill Creek drainage basin. In both of these large-scale assessments, additional ambiguities with the original rating system were identified that were not evident during the field-testing carried out for the original draft. Before undertaking the revisions, comments were also sought from ax wide range of users of the rating system.

Where possible, the comments we have received to date have been incorporated into this revision. A draft of the revisions was sent out to a subgroup of the original review team Listed in Appendix 4), and their comments were taken into account in preparing the final document.

Acknowledgments

First Edition - October 1991

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Introduction

The remaining wetlands in Washington State differ widely in resource value. Some wetland types are common, and others are rare, but all provide some valued functions. These may be ecological, economic, recreational, or esthetic. To effectively protect the remaining wetlands, managers, planners, and citizens need to be able to better understand the resource value of individual wetlands. One way to accomplish this is with a wetlands rating system: a process that differentiates wetlands according to specific characteristics or functional attributes. Permit decisions can then be considered in light of the wetland rating and the potential impact. Protective measures are varied, with the highest levels of protection given to the highest rated wetlands. (An example of appropriate protection standards for use with this rating system is found in Appendix 6.)

Amongst wetland scientists, planners, and regulators there is a continuing debate on the merits of rating wetlands at all. Advocates of wetland rating note that this management approach avoids a multitude of case-by-case, subjective impact determinations made by permit administrators. Wetland rating systems also afford potential developers with early notice of wetland sensitivity according to the rating assigned to a wetland. A rating system will increase predictability, certainty, and consistency of decision making. Additionally, it may simplify and expedite permit review. Wetland rating can also increase the credibility of a wetland protection program by relating protection standards to wetland value.

Critics of wetland rating are concerned that it can be used as a mechanism to direct development impacts to lower rated wetlands, serving only to protect higher rated wetlands. Other critics point to possibly subjective interpretations that may be required on behalf of the wetland evaluator in order to determine a wetland's category or rating, and the high amount of training which may be necessary to ensure appropriate determinations. Additionally, rating systems differentiate and place value on wetland characteristics that are not fully understood. One concern is that there is less published scientific data concerning Northwest wetlands than those in other areas of the United States. Another concern is that we lack complete information on the complex internal processes of individual wetlands and the full effects of their cumulative loss.

Despite the potential drawbacks, the Department of Ecology has developed a rating system to be used in the State of Washington. Ecology's rating system uses specific criteria to allow a determination of the resource value of individual wetlands within four possible categories. **The rating value is based on wetland functions and values, sensitivity to disturbance, rarity, and irreplacability.**

The management decisions which can be made according to this system include: the level of impact avoidance to require; the width of buffers necessary to protect wetlands from adjacent land development; mitigation acreage and replacement ratios; and permitted uses in wetlands (see Appendix 6 for recommended protection standards.). This system does not replace a functional assessment of a wetland, which will be necessary in order to plan and monitor a wetland mitigation project.

The system identifies a relative value for vegetated wetlands and is intended primarily for use with the Clean Water Act definition of wetlands. It does not include mudflats, streambeds, beach substrates, and other ecologically valuable aquatic areas. However, we have included eelgrass beds and kelp beds at the request of State agencies. The system was designed to be used with the 1989 *Federal Manual for Identifying and Delineating Jurisdictional Wetlands.* Use of this system with a different delineation manual may require modifications to certain criteria in order to retain its accuracy.

An essential question is whether or not the rating system will help to protect the public resource value of wetlands. The system is designed to assist local and state governmental agencies that have legal jurisdiction over wetlands. As a tool for protection its success will depend on how it is used.

In fine-tuning the system, Ecology is aware that many local governments are either using, or in the process of developing and adopting systems for determining the value of individual wetlands. The Departments intention in completing this document has been to maintain existing distinctions between the four wetland categories, while adding refinement and predictability.

The rating system is neither considered perfect nor the final answer; however, it is based upon the best information available at this time. Advances in wetlands science will bring further understanding to the valuation of wetlands. We anticipate that this rating system methodology will be farther modified over time as we increase our understanding of wetland systems and improve on our ability to measure wetland functions and values.

Summary of Rationale for the Categories

This rating system was designed to differentiate between wetlands based on their sensitivity to disturbance, rarity, irreplaceability, and the functions they provide. The rating categories are intended to be used with a management plan similar to that outlined in Appendix 6. Use of these management standards with this rating system should result in adequate protection of most wetland resources. Use of less stringent standards, however, may result in a loss of wetland functions and values.

At first glance, it may appear that this rating system is weighted toward wildlife habitat functions and values provided by wetlands with little attention devoted to hydrologic and water quality functions. Rating of the hydrologic and water quality functions provided by wetlands is inherent in many of the factors assessed, such as connection to streams and vegetation interspersion. Indicators of significant hydrologic functions are more complex and costly to assess and were considered inappropriate to use in this context.

Finally, the assumption is made that the management standards will address many concerns regarding loss of hydrologic functions. For example, most wetlands providing important hydrologic functions would fall in Categories I, II, or III, and thus would only be altered if there were no practicable alternative and would receive buffers greater than 50 feet. The only wetlands falling in Category IV would be small, isolated wetlands which provide minimal hydrologic functions which can be replicated in most cases.

It is important to understand that this rating system is not intended to substitute for a detailed functional assessment of a wetland where that is appropriate.

The development of the rating system methodology involved the review of draft documents by two teams, a Technical Review Team and an Implementation Review Team. Details of the review process and the members of the teams are provided in Appendix 4.

The following description of each of the categories summarizes the rationale for each category. As a general principle, it is important to note that all of the categories have valuable functions in the landscape, and all are worthy of inclusion in wetlands protection programs.

Category I

These wetlands are the "cream of the crop." Generally, these wetlands are not common and would make up a small percentage of the wetlands in the state. These are wetlands that: 1) provide a life support function for threatened or endangered species that has been documented, and the wetland is on file in databases maintained by state agencies; 2) represent a high quality example of a rare wetland type; 3) are rare within a given region; or, 4) are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime, if at all. We cannot afford the risk of any degradation to these wetlands. Examples of the latter are mature forested wetlands that may take a century to develop, and bogs and fens with their special plant populations that have taken centuries to develop.

Category II

These wetlands are those that: 1) provide habitat for very sensitive or important wildlife or plants; 2) are either difficult to replace; or 3) provide very high functions, particularly for wildlife habitat. These wetlands occur more commonly than Category I wetlands, but still need a high level of protection.

Category III

These wetlands provide important functions and values. They are important for a variety of wildlife species and occur more commonly throughout the state than either Category I, or II wetlands. Generally these wetlands will be smaller, less diverse, and/or more isolated in the landscape than Category II wetlands. They occur more frequently, are difficult to replace, and need a moderate level of protection.

Category IV

These wetlands are the smallest, most isolated, and have the least diverse vegetation. These are. wetlands that we should be able to replace and, in some cases, be able to improve from a habitat standpoint. However, experience has shown that replacement cannot be guaranteed in any specific case. These wetlands do provide important functions and values, and should to some degree be protected. In some areas, these wetlands may be providing groundwater recharge and water pollution prevention functions and, therefore, may be more important from a local point of view. Thus, regional differences may call for a more narrow definition of this category.

Overview for Users

When to Use the Wetlands Rating System

The system is designed to determine wetlands categories for users of the Department of Ecology's Model Wetland Protection Ordinance, for agencies developing agency procedures for wetlands protection, and for local regulatory programs being developed or revised that address wetland protection.

This rating system was developed to be used with the management protection standards given in Appendix 6 (or similar standards). The use of lesser protection standards with this rating system may result in inadequate protection of wetlands functions and values. The rating system does not try to establish the values present in a wetland; it only helps to identify the levels of protection needed.

It is important to understand that regional differences may need to be accounted for in rating wetlands. Two versions of the Rating System have been designed: an Eastern Washington version and a Western Washington version. This broad division of the state into east and west may not reflect all regional differences at a fine enough scale and it may, therefore, be necessary to modify the criteria or sub-criteria. Use of the wetlands of local significance concept on p. 50 is recommended where local governments need to provide a level of protection to local wetlands that would not be otherwise provided by the rating system.

How the Wetlands Rating System Works

The system requires that specific criteria be confirmed on a Wetlands Rating Office Data Form from state agency sources or by the application of a field methodology before a particular wetland is assigned to a category. The field methodology consists of a Wetlands Rating Field Data Form and detailed guidance.

A summary of the sources of data and criteria to rate individual wetlands according to each category is shown in Table 1 .

The Wetlands Rating Office Data Form on p. 10 is a step-by-step method for determining the category of wetland using information from agency sources. We recommend using the Wetlands Rating Office Data Form before completing the Wetlands Rating Field Data Form. However, please note that the Office Data Form will not provide a rating in most cases and you will need to use the Field Data Form. This is because state agency inventories are not complete.

The Wetlands Rating Field Data Form on p. 25 is also a step-by-step method. We recommend careful reading of the guidance.

TABLE 1: Summary of Criteria by Category and Data Sources	
Criteria for Each Category	**Data Sources**
Category I Wetlands are: (i) Those that have a documented occurrence in the wetland of a federal or state listed endangered, threatened plant …. Animal …….. Or fish species; or……. ii) High quality native wetland communities which qualify for inclusion in the Natural Heritage Information System; or (iii) Documented as regionally significant waterfowl or shorebird concentration areas; or (iv) Wetlands with irreplaceable ecological attributes; or (v) Documented wetlands of local significance.	DNR – Natural Heritage Prog. WA Department of Wildlife WA Department of Fisheries DNR – Natural Heritage Prog. WA Department of Wildlife Field Data Form Local Government
Category II Wetlands satisfy no Category I Criteria, <u>and</u> are: (i) Those that have a documented occurrence in the wetland of a federal or state listed sensitive plant …… animal …… or fish species; or…… (ii) Those that contain priority species or habitats recognized by state agencies; or (iii) Wetlands with significant functions which may not be adequately replicated through creation or restoration; or (iv) Wetlands with significant habitat value of 22 or more points; or (v) Documented wetlands of local significance.	DNR – Natural Heritage Prog. WA Department of Wildlife WA Department of Fisheries WA Department of Wildlife Field Data Form Field Data Form Local Government

TABLE 1 (Continued): Summary of Criteria by Category and Data Sources	
Criteria for Each Category	**Data Sources**
Category III Wetlands satisfy no Category I, II or IV Criteria and are: (i) Wetlands with significant habitat value of 21 points or less; or	Field Data Form
(ii) Documented wetlands or local significance.	Local Government
Category IV Wetlands satisfy no Category I, II or III criteria, and are: (i) Wetlands less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in Table 4; or,	Field Data Form
(ii) Wetlands less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in Table 3.	Field Data Form
(iii) Wetlands that are ponds excavated from uplands and are smaller than 1 acre without a surface water connection to streams, lakes, rivers, or other wetlands throughout the year; and that have less than 1/10 acre of vegetation.	

How to Use the Rating System

Instructions

==========

1) Read guidance for using the Wetlands Office Data Form on page 9, and the Wetland Rating Field Data Form on page 12.

2) Obtain a copy of map(s) showing the boundaries of the wetland you are rating. Use delineated boundaries where possible.

3) Send letters to state agencies requesting information. See the sample letters in Appendices 1-3. Attach a copy of the map(s).

4) When agencies return the information, complete the Wetland Rating Office Data Form (on page 10).

5) In necessary, go to the wetland and complete the Wetland Rating Field Data Form (on page 25).

6) Attach the Field Data Form to the Office Data Form. This is your record of the rating.

==========

Guidance for the Wetlands Rating Office Data Form

Delineation:

The first step is to determine the location and boundaries of wetlands that you are rating. You will need to know the location and boundaries so you can send an accurate map to agencies. For regulatory purposes it is assumed that wetland locations are accurately known before categories are determined. This does not mean that delineation of wetlands must always be undertaken before a meaningful determination of category can be made. However, the wetland boundary is an important factor in determining some rating criteria and a rough assessment may result in inaccuracies in rating.

Rating wetlands that are divided by human made features:

See the general guidance on p. 12 and Appendix 5.

Rating wetlands contiguous with large areas of open fresh water or streams:

See the general guidance in Appendix 5.

Completing the wetlands rating office data form:

Complete the background information. Put names of rater(s), organization, date etc., the location of the wetland using Section, Township and Range coordinates and your sources of information in the spaces provided.

Answer the questions beginning at the top of the form.

Copies of sample letters to state agencies that can help with the data are included in Appendices 1-3. Send the letters to the addresses shown, or make phone calls if your matter is urgent. Use the questions in the letters as guidance if you are making phone calls. A fee may be charged for searches of agency databases. Searches for public agencies (i.e. local governments) and nonprofit organizations are discounted. *NOTE:* It may take up to three weeks to obtain these data, so allow time for this in your assessment.

Complete the Office Data Form when you have answers from the agencies. In most cases the Office Data Form will not provide a rating, so fieldwork will be necessary. Nevertheless it is important to get the agency data and complete the rating form before completing detailed fieldwork. This will save you time and effort should there already be a record of the wetland with the agency.

When you have completed the questions you may have circled higher and lower categories. In this case the highest category applies.

Wetlands Rating Office Data Form

Background Information:

Name of Rater:_____ Affiliation:_____ Date:_____

Name of wetland (if known):_____

Government Jurisdiction of wetland:_____

Location: 1/4 S:_____ of 1/4 S:_____SEC:_____ TWNSHP:_____ RNGE:_____

SOURCES OF INFORMATION: (Check all sources that apply)

Site visit: ___USGS Topo Map: ___ NWI map: ___ Aerial Photo: ___ Soils survey: ____

Other: _____ Describe: _____

When office and/or field data forms are completed enter Category here:

ANSWER ALL QUESTIONS BELOW. If the source agency identifies the wetland as satisfying any of the questions below, circle the category in "CATEGORY" column.	Data Source	Category (the highest qualifies)
Category I Questions		
A. Is the wetland in a Section and Subsection that has been documented as a habitat that performs a life support function 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 database. NOTE: The rating of a wetland is incomplete in most cases without this documentation	DNR–– Natural Heritage; and WDW	Yes: Next Question No: Go to Question D
B. Does the wetland contain individuals of Federal or State-listed Threatened or Endangered plant species; OR Does the wetland contain documented occurrences of federal or state-listed Threatened or Endangered wildlife and species managed by the Washington Department of Wildlife?	DNR-Natural Heritage WDW	Yes: Category I No: Next Question
C. Does the wetland contain documented occurrences of State or Federally listed Threatened or Endangered fish species, OR races of fish, managed by the Washington Department of Wildlife or the Washington Department of Fisheries?	WDW; WDF	Yes: Category I No: Next Question

Wetlands Rating Office Data Form (continued)		
D. Is the wetland already on record with the Washington Natural Heritage Program as a high quality native wetland?	DNR-Natural Heritage	Yes: Category I No: Next Question
E. Does the wetland contain documented regionally significant waterfowl or shorebird concentration areas?	WDW	Yes: Category I No: Next Question
F. Is the wetland documented as a Category I Wetland of Local Significance?	Local Government	Yes: Category I No: Next Question
Category II Questions		
G. Is the wetland in a Township, Section and Subsection that has been documented as a habitat for any State listed Sensitive plant or animal species?	DNR-Natural Heritage Program; and WDW	Yes: Next Question NO – Go to Question K
H. Does the wetland contain individuals of State-listed Sensitive plant species?	DNR Natural Heritage	Yes: Cat. II No: Next Question
I. Does the wetland contain documented occurrences of federally or state-listed sensitive wildlife species?	WDW	Yes: Cat. II No: Next Question
J. Does the wetland contain documented occurrences of state or federally listed Sensitive fish species?	WDF WDW	Yes: Cat. II No: Next Question
K. Does the wetland contain priority species or habitats documented by Washington Department of Wildlife's Priority Habitats and Species Program?	WDW	Yes: Cat. II No: Next Question
L. Is the wetland documented as a Category II Wetland of Local Significance?	Local Government	Yes: Cat. II No: Next Question
Category III Questions		
M. Is the wetland documented as a Category III wetland of local significance.	Local Government	Yes: Cat. III No: go to Rating Field Data Form

General Guidance for the Wetland Rating Field Data Form

Land-owner's permission:

It is important to obtain permission from landowners before going on their property.

Time involved:

The field-time necessary to rate wetlands will vary from as little as fifteen minutes to many hours, or possibly days. Larger sites with dense brush may involve strenuous effort. Several of the rating questions would be best answered by using aerial photographs or other documents or a combination of these resources with field observations.

What experience and qualifications are needed?

It is important that the person completing the field method has experience and/or education in the identification of natural wetland features, particularly vegetation classes and plant species. The more experience one has in wetland fieldwork the quicker and more accurate the result will be. We recommend that qualified wetland staff or consultants be used for most sites, particularly the larger and more complex ones.

Identifying the boundaries of the wetland to be rated:

It is possible to complete the field method with a more rudimentary delineation based on inventory maps and aerial photographs. It should be recognized, however, that a delineation that is not verified by a field survey might result in a different rating. This is especially true in forested wetlands where the boundaries are difficult to determine from aerial photographs.

Wetlands that are not small and isolated often form large contiguous areas, which can extend over hundreds of acres. This is especially true in river valleys where there is some surface water connection between all areas of the floodplain. The primary criterion that should be used to identify wetland boundaries is the water regime. Boundaries between contiguous or connected wetlands should be set at the point where either the volume, flow, or velocity of the water changes significantly. General guidelines to be used for identifying the boundaries of the wetland to be rated are as follows:

1. Identify the wetland area of interest. This may be the site of a proposed impact, a mitigation site, conservation site, etc.

2. Identify the locations where there is physical evidence that the water regime (i.e. hydrology) changes rapidly (see figure 1). Evidence includes both natural and man-made:

    a. constrictions (such as berms, dikes, etc)

    b. points where the water velocity changes rapidly (such as rapids, falls)

    c. points of significant inflow (such as major tributaries)

    d. other factors that limit hydrologic interaction (such as dams and weirs).

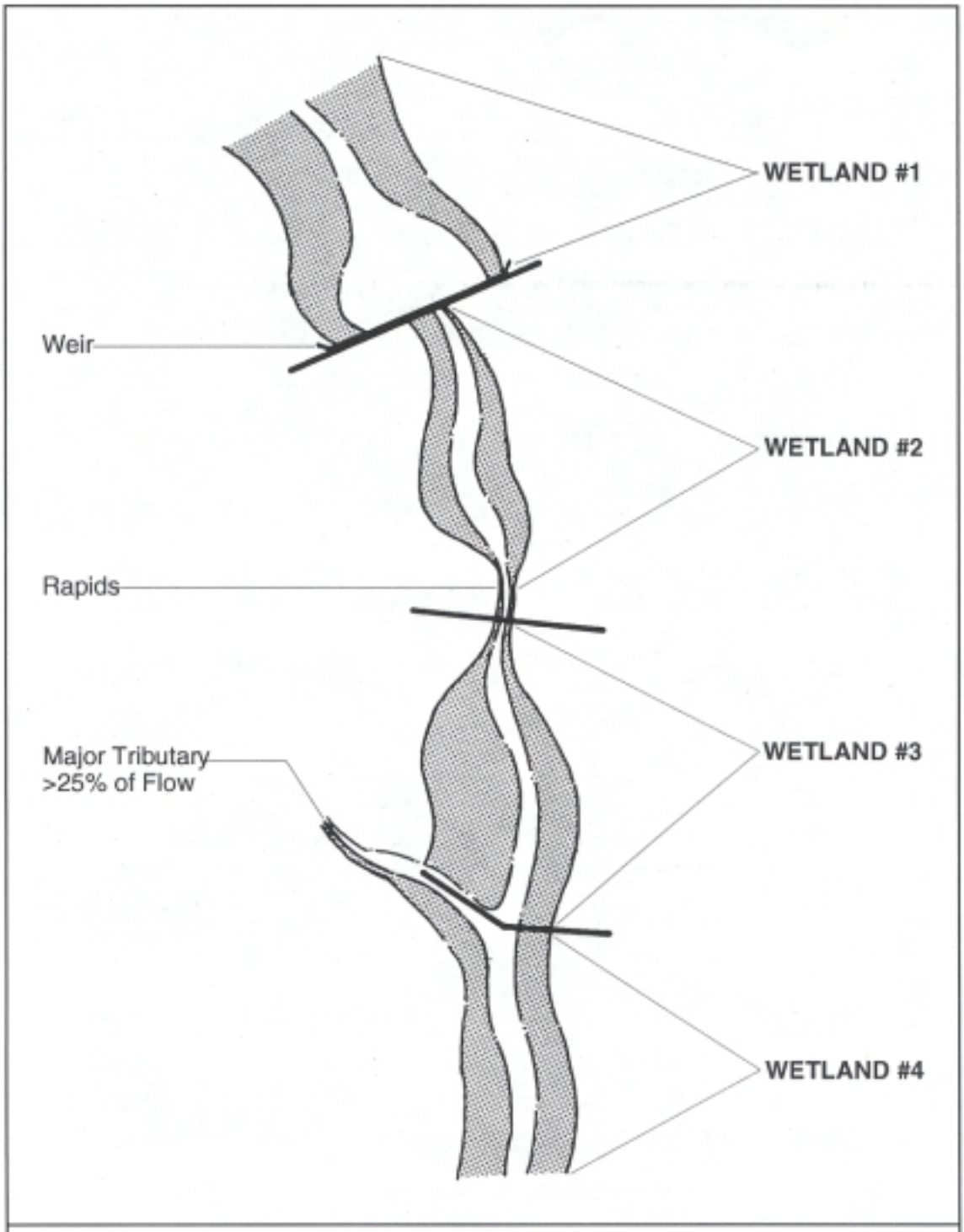


Figure 1. Boundaries for contiguous wetlands along a stream corridor or floodplain

3. Delineate the boundary of the wetland to be rated to include all wetland areas of interest that are contiguous and that are within the areas where the hydrology does not change significantly (i.e. areas with a high degree of hydrologic interaction).

> ***NOTE:*** Property lines should not be used as wetland boundaries for assessment unless they coincide with changes in hydrology.

In some cases it may be difficult to establish the boundaries of wetlands to be rated based on the criteria mentioned above. Common problem cases include:

1. Wetlands divided by artificial boundaries such as property fences, roads, or railroad embankments.
2. Wetlands contiguous with large areas of open freshwater, streams, or rivers.
3. Wetlands that form a patchwork on the landscape.
4. Estuarine wetlands.

Appendix 5 describes some criteria that can be used for the cases listed above. If, however, you have any question on where the boundary of an assessment area should be placed, please contact the Department of Ecology, Wetlands Section. Phone (206) 493-9406.

How to rate wetlands where only part of the wetland is Category I:

Large wetlands often contain areas that would be rated as Category I because they contain special features, such as bogs, that cover a smaller area, but the rest would be rated as Category II or III. In such cases the options are:

1. Rate the entire wetland as a Category I wetland, or
2. Give the wetland a dual rating as a I/II, or a I/III.

To establish a dual rating you will need to establish a boundary within the wetland being rated that clearly establishes the area that is Category I. This will be difficult, and in some cases may not be possible. Dual ratings are NOT acceptable for wetlands that are Category I because they are 1) estuarine, 2) eel grass or kelp beds, 3) high quality native wetlands which qualify for inclusion in the Natural Heritage Information System, or 4) documented wetlands of regional or local significance.

The criteria to be used in establishing the boundary between a Category I area of a wetland and those that are either Category II or III are as follows:

1. For wetland areas that are Category I as a result of the presence of endangered or threatened animal species the boundary between categories should be set at the edge of the specific habitats used by that species. For example, if an occurrence of the western Pond Turtle has been documented in a wetland, the Category I area should include all the habitats used by the turtle (including open water, aquatic bed vegetation, etc.). Consult with Department of Wildlife staff for assistance in determining which habitats to include.

2. For wetland areas that are Category I as a result of the occurrence of an endangered or threatened plant species the boundary between categories should be set at the edge of the vegetation class in which the plant is found. Consult with Department of Natural Resources staff for assistance in determining which habitats to include.

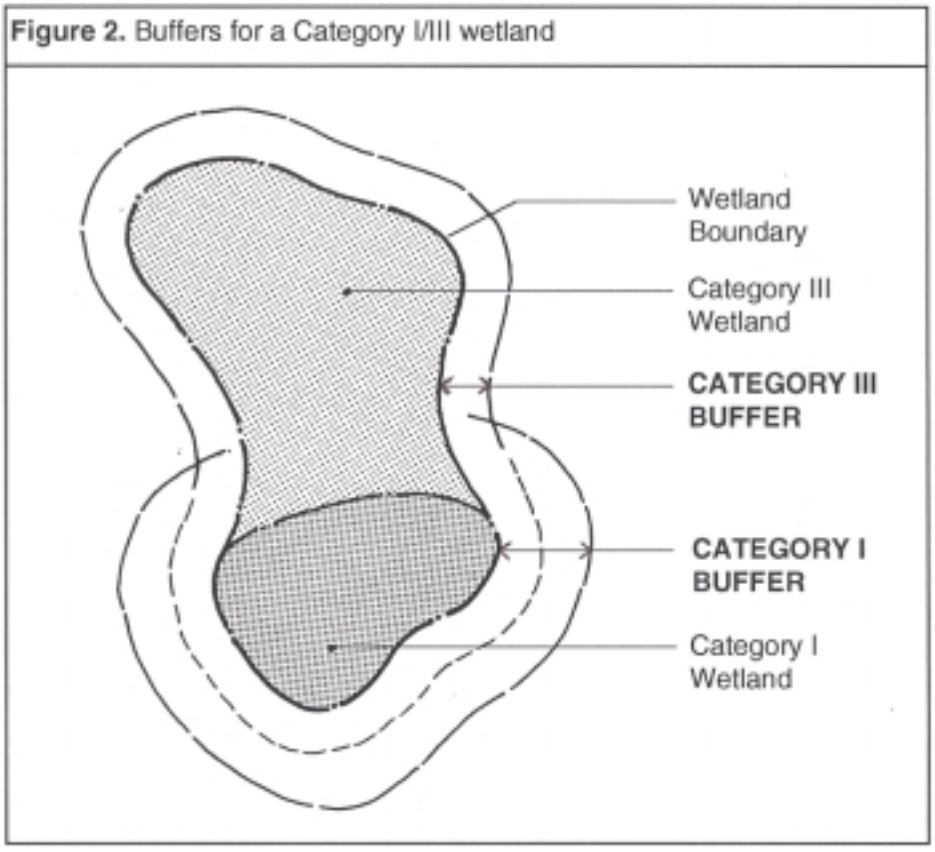
3. For wetland areas that are Category I as a result of the presence of a mature forest, the boundary between categories should be set at the edge (drip line) of the mature forested area (i.e. conifers > 80 years or deciduous older than 50 years).

4. For wetland areas that are Category I because they are bogs and fens, the boundary between categories should be set where the characteristic bog/fen vegetation changes (i.e. most of the plants that are specifically adapted to bogs and fens are replaced with the more common wetland species) and where the organic soils become shallow (less than 16 inches).

In making management decisions regarding development in the wetlands that have dual ratings it will be necessary to show that the category I system is adequately protected from adverse impacts. For example, the model ordinance suggests a 200-300' buffer around a Category I wetland. This buffer should be maintained even if the Category I wetland is surrounded by wetlands of a lower rating and its correspondingly narrower buffer. . Figure 2 gives an example of how buffers should be drawn for a wetland with a dual rating. For assistance in evaluating protective standards for dual rated wetlands, contact the agencies noted above.

Dual ratings of Category II wetlands, however, are not acceptable (i.e. Category II/III).

Figure 2. Buffers for a Category I/III wetland



Detailed Guidance for the Wetland Rating Field Data Form

Background Information:

Put names of rater(s), organization, date etc., the location of the wetland using Section, Township and Range coordinates, and sources of your information in the spaces provided.

Question 1. High Quality Native Wetlands:

During the site visit, assess the extent of damage to the natural system by human caused disturbance. If lack of disturbance is indicated based on question 1, contact staff of the Washington Natural Heritage Program.

Note: evidence of human-caused disturbance is often obscured or not evident from a single site visit or without additional research. Aerial photographs, however, can be useful in assessing recent site disturbance.

In general, if you find any of the following conditions the wetland is probably disturbed to the extent that it would not be classified as a high quality native wetland. If there is any doubt, however, regarding the quality of the native wetland please contact the Washington Natural Heritage Program.

Indicators of Human Caused Disturbances:

1. The watershed "upstream" of the wetland has more than 12% impervious surfaces.
2. The wetland has been ditched, and the ditches are free flowing and not obstructed.
3. The wetland has areas where the cover of nonnative species is greater than 10%.
4. The wetland has been graded, filled, or logged.
5. The wetland contains dikes that control or divert water, or whose water regime is controlled by dikes, either upstream or downstream.

Question 2. Irreplaceable ecological attributes

Question 2a: Undisturbed Bogs and Fens

Bogs and fens are rare, sensitive habitats with an irregular distribution in Western Washington. The chemistry of these wetlands is such that changes to the hydrology or water quality of the wetland can easily alter its ecosystem. Immediate changes in the composition of the plant community often occur after the hydrology changes. Once disturbed, the water chemistry that is so characteristic of the bog and fen hydrology is difficult, if not impossible, to reestablish.

Bogs are low nutrient, acidic wetlands that have organic soils, and whose hydrology is based on precipitation. As a result, there is a characteristic flora and fauna associated with bogs that is easy to recognize. Fens are wetlands that have organic soils, receive ground water or surface runoff, and are somewhat less acidic than bogs. Fens, however, are also characterized by a specialized plant community consisting of herbaceous vegetation. Both bogs and fens have undrained organic soils that are inundated or saturated for most of the year in Western Washington.

For the purpose of this rating system, bogs and fens are identified by the presence of a deep layer of organic soils (> 16 inches) and either the presence of a sphagnum moss understory or a cover of certain herbaceous plants without shrubs or trees.

Most bogs and fens are found on organic soils called peats in which much of the organic matter produced by the mosses and other plants has not decomposed. If more than two-thirds of the soil material consists of plant fibers that are still identifiable as fibers the soil is called a peat by the Soil Conservation Service (SCS). If less than two-thirds of the soil material is identifiable, the soil is called a muck. Most bogs and fens are found on peat soils, although you may find cases where these wetlands are found on mucks as defined by the SCS. If you find peat or muck soils it is important that you determine whether the wetland can be categorized as a bog or fen.

Although many common wetland plant species are found in bogs and fens, there are some species that are characteristic of these wetlands in Washington and can be used as indicators of these habitats (Table 2). ***Note:*** Some sphagnum bogs in Washington State are forested, and the sphagnum 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 sphagnum peat. Fens are generally dominated by grasses, rushes, or other herbaceous species. For the purpose of this rating system any emergent wetland with more than 16 inches of peat or muck soils that contains at least one species from table 2 and less than 30% sphagnum species is a fen.

If in doubt it is important to consult someone with expertise in identifying bogs and fens. The intent of the criteria is to include in Category I those bogs and fens which have at least 1/2 acre of relatively undisturbed native plant communities. Bogs and fens that are ¼ - ½ acre in size are included in Category II.

Bogs and fens 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 invasive species (see Table 3 for a list of invasive species in western Washington). If you are rating a bog of fen that you suspect should not be rated as a Category I because it is heavily disturbed or in a transition state please contact the Department of Ecology Wetland Section for help in rating.

Table 2. Characteristic plants of bogs and fens	
Andromeda polifolia	Bog rosemary
Betula glandulosa	Bog birch
Carexpauciflora	Few-flower sedge
Carexpluriflora	Several-flowered sedge
Carex rostrata	Beaked sedge
Cladina rangiferina	Reindeer lichen
Drosera rotundifolia	Sundew
Empetrum nigrum	Black crowberry
Eriophorum chamissonis	Cottongrass
Kalmia occidentalis	Bog Laurel
Ledum groenlandicum	Labrador Tea
Myrica gale	Sweetgale
Picea sitchensis	Sitka spruce
Rhynchospora alba	White beakrush
Sphagnum spp.	Sphagnum moss
Vaccinium oxycoccos	Bog Cranberry

Question 2b. A Mature Forested wetland class:
A forested wetland should be rated as a Category I if the woody vegetation (such as alder, cedar, hemlock, cottonwood, and some willow species, etc.) that provides the canopy over the wetland is over 20 ft. tall and at least 50 years old for deciduous trees and 80 years old for evergreens. To qualify for a Category I, there has to be at least 1/4 acre of the Forested class that meets the size and age criteria. To determine age, the best methods are to use a tree corer, or to gather historical data (e.g. aerial photos, land use records, permits, etc.) to determine when the area was last logged.

Question 2c. Estuarine Wetlands:
Areas where salt tolerant plant species are found and the hydrology are influenced by tidal action. The wetlands are usually partially enclosed by land with open or partially obstructed access to the ocean. In areas where freshwater wetlands grade into estuarine ones, the boundary of the latter extends to an area where the salinity is less than 0.5 ppt during the period of average annual low flow.

"Minimum disturbance" in estuarine wetlands means that the plant community, soils, and hydrology are generally undisturbed. Structures (e.g., fences, broken tide gates, etc.) or activities that have not visibly changed the plant community, soils, or hydrology (e.g. low level grazing or isolated occurrences of filling or draining), are considered a minimum disturbance.

Question 3. Category IV wetlands.

Hydrologically isolated wetland means: those regulated wetlands which:
1) have no surface water connection to a lake, river. or stream during any part of the year;
2) are outside of and not contiguous to any 100-yr floodplain of a lake, river, or stream; and
3) have no contiguous hydric soil between the wetland and any lake, river or stream.
4) may be a pond excavated from uplands with no surface water connection to a stream, lake, or other wetland.

Use the following lists when answering Q.3a and 3b:

Table 3 List of invasive/exotic plant species for question 2a.1 (peat wetlands), Question 2b.3, (mature forested wetlands), and Question 3.2 (Category IV wetlands)	
Scientific Name	**Common Name**
Agropyron repens	Quackgrass
Alopecuruspratensis, A. aequalis	Meadow Foxtail
Arcticum minus	Burdock
Brumus tectorum, B. rigidus, B. brizaeformis, B. secalinus	Bromes
B. japonicus, B. mollis, B. commutatus, B. inermis, B. erectus	
Cenchrus longispinus	Sandbur
Centaurea solstitialis, C. repens, C cyanus, C maculosa	Knapweeds
C diffusa	
Cirsium vulgare, C arvense	Thistles
*Cynosursus cristasus, C echinatus*l	Dogtail
Cytisus scoparius	Scot's Broom
Dactylis glomerata	Orchardgrass
Dipsacus sylvestris	Teasel
Digitaria sanguinalis	Crabgrass
Echinochloa crusgalli	Barnyard Grass
Elaeagnus augustifolia	Russian Olive
Euphorbiapeplus, E. esula	Spurge
Festuca arundinacea, F. pratensis	Fescue
Holcus lanatus, H. mollis	Velvet Grass
Hordeumjubatum	Foxtail Barley
Hypericumperforatum	St. John's Wort
Iris pseudacorus	Yellow Iris
Loliumperenne, L multiflorum, L temulentum	Ryegrass
Lotus corniculatus	Birdsfoot Trefoil
Lythrum salicaria	Purple Loosestrife
Matricaria matricarioides	Pineapple Weed
Medicago sativa	Alfalfa
Melilotus alba, M. officinalis	Sweet Clover
Phalris arundinacae	Reed Canarygrass
Phleum pratense	Timothy
Phragmites australis	Reed
Poa compressa, P. palustris, P. pratensis	Bluegrass
Polygonium aviculare, P. convolutus, P. cuspidatum	Knotweeds
P. lapathifolium, P. persicaria	
Ranunculus repens	Creeping Buttercup
Rubus discolor, R. laciniatus, R. vestitus, R. macrophyllus	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	Clovers
T. subterraneum, T. hybridium	
Cultivated species:	Wheat, Corn, Barley, Rye, etc.

Table 4. List of native species for rating Category IV wetlands	
Scientific Name	**Common Name**
Juncus effusus	Soft Rush
Spirea douglasii	Hard Hack, Buck Brush
Typha latifolia	Cattail

Question 4. Significant habitat value:

4a. Total Wetland Acreage:
Use aerial photographs or NWI maps to measure and/or visually estimate acreage. Cite the source used. Unless you have considerable experience, visual estimation of acreage is unreliable. Use the guidance in Appendix 5 when the wetland is contiguous with large areas of open fresh water and/or streams.

Using areal measurements:
Areal measurements are those made as if the site were being viewed from the air. They are best made from recent air-photographs, if available, or derived from maps drawn from on the ground measurement. The latter method is time consuming and, unless the measurements are extensive, not as accurate. On the ground visual estimates can also be made. However, unless the rater has considerable experience these estimates are likely to be inaccurate.

The term "areal cover": means the % of the ground surface covered by vegetation. The % cover of plant species within a specific class is used to decide what classes are present in the wetland. Figure 3 gives a graphic example of a wetland with different classes and how the % cover might be distributed.

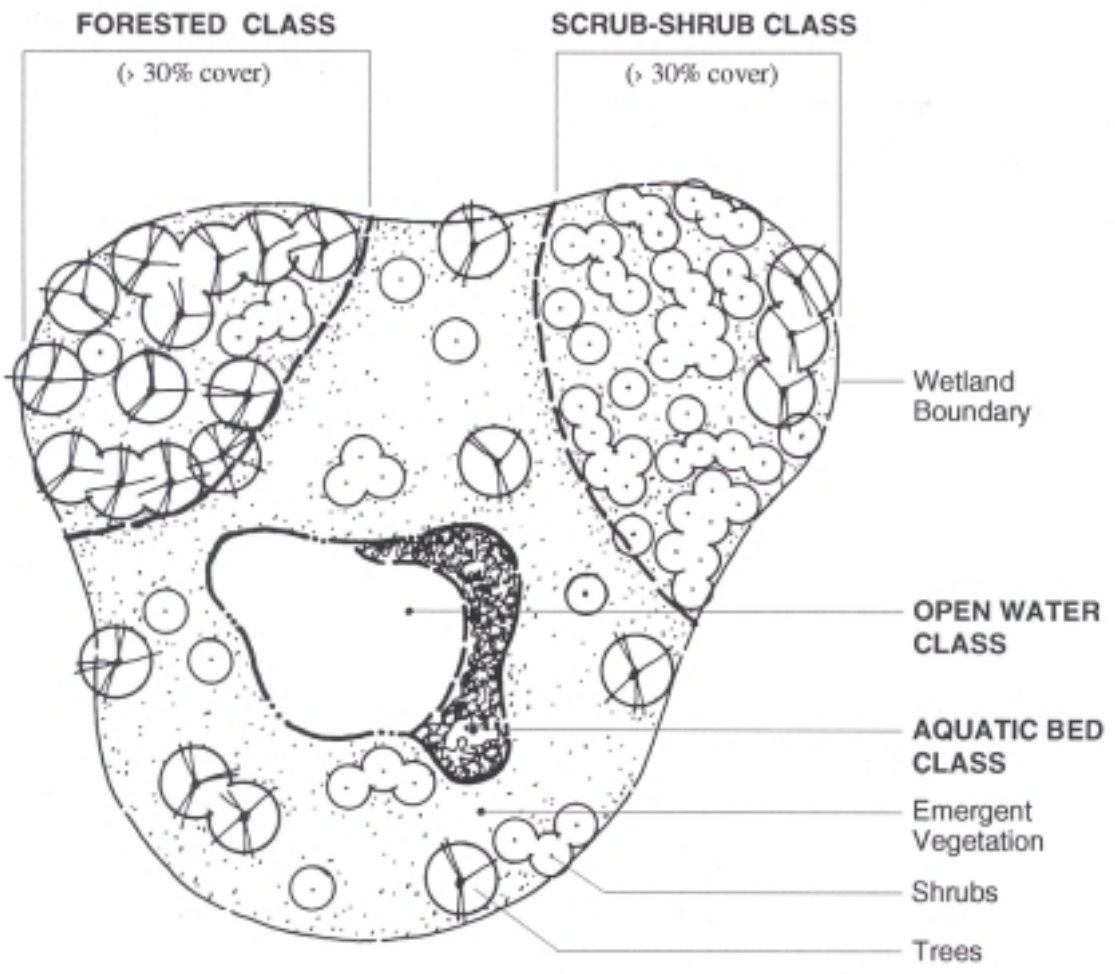
4b. Wetland Vegetation Classes:
Vegetation in wetlands is generally distinguished by its life form. Characteristics such as "herbaceous", "scrub-shrub", and "forest" are easy to distinguish and do not require extensive biological knowledge to determine.

To answer question 4b you will need to identify the classes of vegetation that are found in the wetland. This will involve walking through the wetland and developing a rough sketch of the distribution of plant life forms on a map. From this it will then be possible to estimate the area covered by each vegetation class.

Deciding on Classes present in the wetland:
The following criteria are used in the rating system to determine whether or not wetland classes are present at all, and if wetland classes are present, whether there is enough area of a wetland class to score points. For example, the presence of a few trees scattered in a wetland is not enough for the wetland to qualify as having a forested wetland class or to score points.

First decide which classes of vegetation are present using the definitions listed below. Identify all areas that you would consider to be forested, scrub-shrub, emergent, open water, or aquatic bed and sketch them on a map of the site. Within these areas then estimate whether the plants that fall into that class cover at least 30% of the ground. Finally estimate whether the class covers at least 1/4 acre of the wetland (see Figure 3). A wetland class qualifies for points in the rating system only if it is larger than 1/4 acre. If the entire wetland is smaller than 1/4 acre or if there are several vegetation classes present but none is greater than 1/4 acre SCORE a ZERO for this question.

Figure 3. Boundaries between vegetation classes in a wetland with a mixture of classes



***Note*: The **Emergent Class** is the wetland area where emergents cover › 30% of the ground, but does not meet forested or scrub/shrub wetland class criteria.**

Specific criteria for wetland classes:

Aquatic Bed: An Aquatic Bed wetland class is any area(s) of open water with rooted aquatic plants such as lily pads, pondweed, etc. Aquatic Bed vegetation does not always reach the surface and care must be taken to look into the water.

An Aquatic Bed class qualifies for points in the rating system if the total area of Aquatic Beds is at least 1/4 acre of the total area (not necessarily contiguous) of open water in the entire wetland being rated.

Open Water: An open water wetland class is any area of standing water present for more than one month at any time of the year without emergent, scrub-shrub or forested vegetation. The open water Class may include "aquatic bed" plant species. At certain times of year it may be difficult to determine if open water (with or without aquatic beds) is present. Use aerial photographs, talk with landowners or neighbors, look for dried or muddy areas without vegetation which indicate that open water was present earlier in the year, or in past years. Cite your source of information for making this determination.

The presence of an open water class qualifies for points in the rating system if the contiguous area of the Open Water class is at least 1/4 acre.

Emergent: An emergent wetland class is any area of the wetland where non-woody vegetation (such as cattail, grasses, sedges, etc.) cover at least 30% of the ground.

Note: If, however, the same area also contains scrub-shrub or forest vegetation that also cover more than 30% of the ground the class is determined on the basis of the life form of the plants that constitute the uppermost layer of vegetation (i.e. If an area contains a 60% cover of emergent species and a 35% cover of forest species the class would be Forested).

The presence of an emergent class qualifies for points in the rating system if the contiguous area of the emergent wetland class (i.e. the area where emergent plant species cover more than 30% of the ground) is at least 1/4 acre in size.

Scrub-shrub: A scrub-shrub wetland class is any area of vegetated wetland where woody vegetation less than 20 ft. tall (such as most willow species, hardhack, dogwood, salmonberry, etc.) comprises at least 30% of the areal cover.

A scrub-shrub vegetation class qualifies for points in the rating system if the contiguous area of the scrub-shrub wetland class (i.e. the area where scrub/shrub species cover more than 30% of the ground) is at least 1/4 acre in size.

Forested: A forested wetland class is any area of vegetated wetland where woody vegetation over 20 ft. tall (such as alder, cedar, hemlock, cottonwood, and some willow species, etc.) comprises at least 30% of the areal cover.

A forested wetland class qualifies for points in the rating system if the contiguous area of the forested wetland class (i.e. the area where forest species cover more than 30% of the ground) is at least 1/4 acre in size.

Note: Whenever more than one vegetated wetland class is present on the same area the tallest class prevails. In the example above, if there is more than 30% scrub-shrub species and more than 30% emergent species on the same area of wetland, that area would be called a scrub-shrub class. Similarly, a forested class would prevail over a scrub-shrub class.

4c. Plant Species diversity: Count the number of different plant species you can find within each vegetated wetland class. To qualify for points, however, each species you find must cover at least 5% of the ground within the area covered by that class. This does not mean you have to name the species. For example, you find three species in an area that can be classified as "emergent": A grass has a cover of 80%, a sedge covers 20%, and there are only a few plants of a rush. Since only the grass and sedge have covers greater than 5%, only these two species quality for points under this question. Note: Any plant species with a cover of more than 5% qualifies for points within a class (even those that are not of the dominant class).

4d. Structural diversity: Because question 4b in the rating system gives priority to the tallest vegetation class, question 4d is designed to recognize the underlying structural diversity. For example, emergent vegetation (covering 30% of the ground) under a forested canopy > 50' tall would score 2 points.

4e. Interspersion: Is a measure of the complexity of wetland classes. Select the drawing, which most closely approximates the distribution of vegetative classes, open water and aquatic beds in the wetland.

4f. Habitat features:

Beaver usage. Look for signs of current beaver activity (fresh cuttings, maintained dam or lodges). Note whether ponded water is a result of beaver activity.

Snags and downed logs should be in or adjacent to the wetland.

Open water: Try to determine whether there are areas (vegetated or unvegetated) within the wetland which are inundated for at least 4 months out of the year, and the wetland has not met the other criteria for open water in Question 4b. The availability of open or standing water (vegetated or unvegetated), however small is important to a variety of species. Frogs, salamanders, insects, crustaceans, and molluscs rely on areas of permanent or seasonal ponding to grow and reproduce, but the area required can be very small.

4g. Connection to streams:

A wetland is connected if some part of the wetland boundary has a surface water connection to seasonal or perennial flowing surface water (including floodwater) by way of a channel (natural or man-made) or an area of open water. The connection could be through a culvert, or a series of culverts, for example. To qualify for points you need to have firm evidence, which you can document on your data sheet, that the connection exists at some time during the year for at least one-month. In order to get the full 6 points; the channel has to be deep enough to permit access for fish if the connection is to a fish-bearing stream. If the connection is to a non-fish-bearing stream there has to be firm evidence that the surface water connection has a flow in it, and thus can export organic matter out of the wetland. The surface water connection can be at any time of the year and does not have to be present at the time a site is rated.

A connection could be shown by drift lines, sediment deposits or material such as grass wrapped on branches at higher flood levels. Determine if the flow between the wetland and the stream is perennial or seasonal and whether or not the stream contains fish at any time of the year. It may require careful work to determine if a connection exists.

A stream is a watercourse where there is at least a seasonal flow of water that is predominantly in one direction and there is a defined bank or series of banks containing the water.

4h. Buffers:
The wetlands rating system assigns points for wetland buffers according to three variables: The type of vegetation in the buffer, the distance (as measured on a horizontal plane) from the edge of the wetland to the upland edge of the buffer (i.e., line where the vegetation changes or the land use changes), and the percentage of the wetland boundary which adjoins buffered areas. The field form gives four descriptions of buffers and assigns scores to them. Select the description, which best matches the existing buffers. If the buffers do not match the descriptions exactly, score either a point higher or lower than the description that best matches actual conditions. The choice of a higher or lower score will depend on whether the buffer provides more or less buffering function than the description on the form.

Note: Roads, buildings and parking lots are not assigned a value as buffers.

4i. Connection to other habitat areas:
A riparian corridor as used in this rating system is defined as a moist vegetated area connecting two or more wetlands or areas of open water. It is characterized by the presence of vegetation that tolerates moist conditions and, usually, periodic free-flowing water such as a stream or river even though the area does not meet the three criteria defining a regulated wetland. The varied vegetation cover, food sources, and availability of water found in riparian corridors are very important to wildlife, especially since they permit relatively undisturbed movement of wildlife between wetlands. ***Note:*** This definition is only one of several that are in common usage. The one used was chosen to best meet the intent of the habitat questions.

Significant Habitat Area means a high quality natural upland or open water area such as a park, reserve, forest, lake, or other area that is essentially undisturbed and "natural" (or has been undisturbed for at least 10 years). Such areas outside the wetland boundary provide important habitat for some species that need a variety of habitats to meet their needs. For the purpose of scoring a significant habitat, the upland connected to the wetland has to be natural and at least 300 yards in its narrowest dimension (i.e. diameter or width). For open water the size is larger than 20 acres. In assessing the size of the "Significant Habitat Area" existing natural buffers around the wetland may be included as long as they are relatively, undisturbed.

Habitat Area means any vegetated area (forested, shrub, or herbaceous) that might provide habitat for species using both wetland and upland ecosystems. Developed or heavily disturbed areas such as farmed, urban, or residential lands are not generally considered to be habitat areas, except in special circumstances (i.e. grazed wetlands that provide overwintering for migratory waterfowl). For the purpose of scoring, a Habitat Area has to be at least 50 yards in its narrowest dimension (diameter or width). Buffers may be used in the areal estimate if they remain relatively undisturbed.

Upland Corridor means a vegetated, relatively undisturbed connection between two or more wetlands, or the wetland and habitat area. A relatively undisturbed wetland buffer that extends into habitat areas is to be considered as an upland corridor.

Wetlands Rating Field Data Form

Background Information:

Name of Rater:_____ Affiliation:_____ Date:_____

Name of wetland (if known):_____

Government Jurisdiction of wetland:_____

Location: 1/4 Section:_____ of 1/4 S:_____ Section:_____ Township:_____ Range:_____

Sources of Information: (Check all sources that apply)

Site visit:____ USGS Topo Map:____ NWI map:_____ Aerial Photo:____ Soils survey:_____

Other:_____ Describe:_____

When The Field Data form is complete enter Category here:

Q.1. High Quality Natural Wetland	Circle Answers
Answer this question if you have adequate information or experience to do so. If not find someone with the expertise to answer the questions. Then, if the answer to questions 1a, 1b and 1c are all NO, contact the Natural Heritage program of DNR.	
1a. Human caused disturbances.	
Is there significant evidence of human-caused changes to topography or hydrology of the wetland as indicated by any of the following conditions? Consider only changes that may have taken place in the last 5 decades. The impacts of changes done earlier have probably been stabilized and the wetland ecosystem will be close to reaching some new equilibrium that may represent a high quality wetland.	
	Yes: go to Q.2
1a.1 Upstream watershed > 12% impervious.	Yes: go to Q.2
1a2. Wetland is ditched and water flow is not obstructed.	Yes: go to Q.2
1a3. Wetland has been graded, filled, logged.	Yes: go to Q.2
1a4. Water in wetland is controlled by dikes, weirs, etc.	Yes: go to Q.2
la5. Wetland is grazed.	Yes: go to Q.2
1a6. Other indicators of disturbance (list below)	No: go to 1b.
_____	
_____	
_____	
_____	

1b Are there populations of non-native plants which are currently present, cover more than 10% of the wetland, and appear to be invading native populations? Briefly describe any non-native plant populations and Information source(s):_____ _____	YES: go to Q.2 No: go to 1c.
1c. Is there evidence of human-caused disturbances which have visibly degraded water quality. Evidence of the degradation of water quality include: direct (untreated) runoff from roads or parking lots; presence, or historic evidence, of waste dumps; oily sheens; the smell of organic chemicals; or livestock use. Briefly describe: _____ _____	YES: go to Q.2 NO: Possible Cat. I Contact DNR
Q.2. Irreplaceable Ecological Functions: Does the wetland: have at least 1/4 acre of organic soils deeper than 16 inches and the wetland is relatively undisturbed; OR [If the answer is NO because the wetland is disturbed briefly describe: Indicators of disturbance may include: - Wetland has been graded, filled, logged; - Organic soils on the surface are dried-out for more than half of the year; - Wetland receives direct stormwater runoff from urban or agricultural areas.]; OR have a forested class greater than 1 acre; OR have characteristics of an estuarine system; OR have eel grass floating or non-floating kelp beds?	(NO to all: go to Q.3) YES go to 2a YES: Go to 2b Yes: Go to 2c Yes: Go to 2d
2a. Bogs and Fens Are any of the three following conditions met for the area of organic soil? 2a.1. Are Sphagnum. mosses a common ground cover (>30%) and the cover of invasive species (see Table 3) is less than 10%? Is the area of sphagnum mosses and deep organic soils > 1/2 acre? Is the area of sphagnum mosses and deep organic soils ¼-1/2 acre? 2a.2. Is there an area of organic soil which has an emergent class with at least one species from Table 2, and cover of invasive species is < 10% (see Table 3)? Is the area of herbaceous plants and deep organic soils > 1/2 acre? Is the area of herbaceous plants and deep organic soils 1/4-1/2acre?	 YES: Category I YES: Category II NO: Go to 2a.3 YES: Category I YES: Category II NO: Go to 2a.3

2a.3. Is the vegetation a mixture of only herbaceous plants and Sphagnum mosses with no scrub/shrub or forested classes? Is the area of herbaceous plants, Sphagnum, and deep organic soils > 1/2 acre? Is the area of herbaceous plants, Sphagnum, and deep organic soils ¼-1/2 acre?	YES: Category I YES: Category II NO: Go to Q.3.
Q.2b. Mature forested wetland.	
2b.1. Does 50% of the cover of upper forest canopy consist of evergreen trees older than 80 years or deciduous trees older than 50 years? ***Note:*** The size of trees is often not a measure of age, and size cannot be used as a surrogate for age (see guidance).	YES: Category I NO: Go to 2b.2
2b.2. Does 50% of the cover of forest canopy consist of evergreen trees older than 50 years, AND is the structural diversity of the forest high as characterized by an additional layer of trees 20'-49' tall, shrubs 6'- 20', tall, and a herbaceous groundcover?	YES: Go to 2b.3 NO: Go to Q.3
2b.3. Does < 25% of the areal cover in the herbaceous/groundcover or the shrub layer consist of invasive/exotic plant species from the list on p. 19?	YES: Category I NO: Go to Q.3
Q.2c. Estuarine wetlands.	
2c.l. Is the wetland listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151?	YES: Category I NO: Go to 2c.2
2c.2. Is the wetland > 5 acres; .....…….. ***Note:*** If an area contains patches of salt tolerant vegetation that are 1) less than 600 feet apart and that are separated by mudflats that go dry on a Mean Low Tide, or 2) separated by tidal channels that are less than 100 feet wide; all the vegetated areas are to be considered together in calculating the wetland area.	YES: Category I
or is the wetland 1-5 acres; ……	YES: Go to 2c.3
or is the wetland < 1 acre? …….	YES: Go to 2c.4

2c.3. Does the wetland meet at least 3 of the following 4 criteria: ……. - minimum existing evidence of human related disturbance such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species (see guidance for definition); - surface water connection with tidal saltwater or tidal freshwater; - at least 75% of the wetland has a 100 buffer of ungrazed pasture, open water, shrub or forest; - has at least 3 of the following features: low marsh; high marsh; tidal channels; lagoon(s);woody debris; or contiguous freshwater wetland. 2c.4. Does the wetland meet all of the four criteria under 2c3? (above)?	YES: Category I NO Category II YES: Category II NO: Category III
Q.2d. **Eel Grass and Kelp Beds.** 2d.1. Are eelgrass beds present? …….. 2d.2. Are their floating or non-floating kelp bed(s) present with greater than 50% macro algal cover in the month of August or September?……	YES: Category I NO: go to 2d.2 YES: Category I NO: Category II
Q.3. Category IV wetlands. 3a. Is the wetland: less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from Table 3 (page 19) or Table 4 (page 20) 3b. Is the wetland: less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover in any combination of species from Table 3 (page 19) 3c. Is the wetland excavated from upland and a pond smaller than 1 acre without a surface water connection to streams, lakes, rivers, or other wetland, and has < 0.1 acre of vegetation.	YES: Category IV NO: go to 3b YES: Category IV NO: go to 3c YES: Category IV NO: go to Q.4

Q.4. Significant habitat value.
Answer all questions and enter data requested.

4a. Total wetland area

Estimate area, select from choices in the near-right column, and score in the far column:

Enter acreage of wetland here:_____acres, and source:_____

Circle scores that qualify

acres	points
>200	6
40-200	5
10-40	4
5-103	
1-5	2
0.1-1	1
<0.10	

4b. Wetland classes: Circle the wetland classes below that qualify:

Open Water: if the area of open water is > 1/4 acre

Aquatic Beds: if the area of aquatic beds > 1/4 acre,

Emergent: if the area of emergent class is > 1/4 acre,

Scrub-Shrub: if the area of scrub-shrub class is > 1/4 acre,

Forested: if area of forested class is > 1/4 acre,

Add the number of wetland classes, above, that qualify, and then Score according to the columns at right.

e.g. If there are 4 classes (aquatic beds, open water, emergent & Scrub-shrub), you would circle 8 points in the far right column.

#of classes	Points
1.....	0
2.....	3
3.....	6
4.....	8
5.....	10

4c. Plant species diversity.

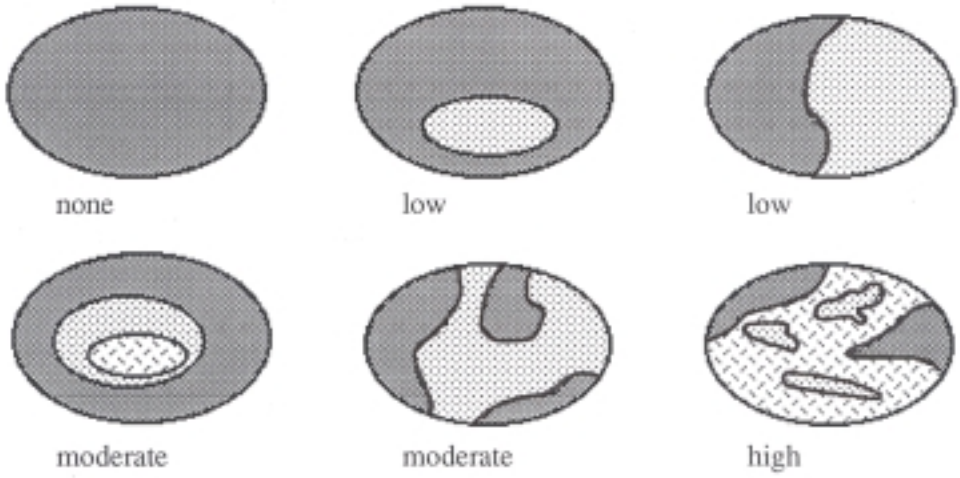
For each wetland class (at right) that qualifies in 4b above, count the number of different plant species you can find that cover more than 5% of the ground. You do not have to name them.

Score in column at far right:

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

Note: Any plant species with a cover of > 5% qualifies for points within a class, even those that are not of that class.

Class	# species in class	Points
Aquatic	1	0
	2	1
	3	2
	>3	3
Emergent	1	0
	2-3	1
	4-5	2
	>5	3
Scrub-Scrub	1	0
	2	1
	3-4	2
	>4	3
Forested	1	0
	2	1
	3-4	2
	.>4	3

4d. Structural diversity. If the wetland has a forested class, add 1 point if each of the following Classes is present within the forested class and is <u>larger than 1/4 acre</u>: -trees > 50' tall……. -trees 20'- 49' tall…… -shrubs…… -herbaceous ground cover……. Also add 1 point if there is any "open water" or "aquatic bed" class Immediately next to the forested area (i.e. there is no scrub/shrub or emergent vegetation between them).	 YES - 1 YES - 1 YES – 1 YES – 1 YES – 1
4e. Decide from the diagrams below whether interspersion between wetland classes is high, moderate, low or none? If you think the amount of interspersion falls in between the diagrams score accordingly (i.e. a moderately high amount of interspersion would score a 4, while a moderately low amount would score a 2)	High – 5 Moderate – 3 Low – 1 None – 0
 	
4f Habitat features. Answer questions below, circle features that apply, and score to right: Is there evidence that the open or standing water was caused by beavers Is a heron rookery located within 300'? Are raptor nest/s located within 300'? Are there at least 3 standing dead trees (snags) per acre greater than 10" in diameter at "breast height" (DBH)? Are there at least 3 downed logs per acre with a diameter > 6" for at least 10' in length? Are there areas (vegetated or unvegetated) within the wetland that are ponded for at least 4 months out of the year, and the wetland has not qualified as having an open water class in Question 4b. ?	 YES = 2 YES = 1 YES = 1 YES = 1 YES = 1 YES = 2

4g. Connection to streams. (Score one answer only.) 4g.l. Does the wetland provide habitat for fish at any time of the year AND does it have a perennial surface water connection to a fish-bearing stream.	YES = 6
4g.2 Does the wetland provide fish habitat seasonally AND does it have a seasonal surface water connection to a fish-bearing stream.	YES = 4
4g.3 Does the wetland function to export organic matter through a surface water connection at all times of the year to a perennial stream.	YES = 4
4g.4 Does the wetland function to export organic matter through a surface water connection to a stream on a seasonal basis?	YES = 2
4h. Buffers. Score the existing buffers on a scale of 1-5 based on the following four descriptions. If the condition of the buffers do not exactly match the description, score either a point higher or lower depending on whether the buffers are less or more degraded.	
Forest, scrub, native grassland or open water buffers are present for more than 100'around 95% of the circumference.	Score = 5
Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/2 of the wetland circumference, or a forest, scrub, grasslands, or open water buffers for more than 50' around 95 % of the circumference.	Score = 3
Forest, scrub, native grassland, or open water buffers wider than 100' for more than 1/4 of the wetland circumference, or a forest, scrub, native grassland, or open water buffers wider than 50' for more than 1/2 of the wetland circumference.	Score = 2
No roads, buildings or paved areas within 100' of the wetland for more than 95% of the wetland circumference.	Score = 2
No roads, buildings or paved areas within 25' of the wetland for more than 95% of the circumference, or No roads buildings or paved areas within 50' of the wetland for more than 1/2 of the wetland circumference.	Score = 1
Paved areas, industrial areas or residential construction (with less than 50' between houses) are less than 25 feet from the wetland for more than 95 % of the circumference of the wetland.	Score = 0

4i. Connection to other habitat areas: Select the description, which best matches the site being evaluated. -Is the wetland connected to, or part of, a riparian corridor at least 100' wide connecting two or more wetlands; or, is there an upland connection present >100' wide with good forest or shrub cover (>25% cover) connecting it with a Significant Habitat Area?	YES = 5
-Is the wetland connected to any other Habitat Area with either 1) a forested/shrub corridor < 100' wide, or 2) a corridor that is > 100' wide, but has a low vegetative cover less than 6 feet in height?	Yes = 3
-Is the wetland connected to, or a part of, a riparian corridor between 50 - 100' wide with scrub/shrub or forest cover connection to other wetlands?	Yes = 3
- Is the wetland connected to any other Habitat Area with narrow corridor (<100') of low vegetation (< 6' in height)?	Yes = 1
- Is the wetland and its buffer (if the buffer is less than 50' wide) completely isolated by development (urban, residential with a density greater than 2/acre, or industrial)?	Yes = 0

Now add the scores circled (for Q.5a – Q.5i above) to get a total.
Is the Total greater than or equal to 22 points? **YES = Category II**
NO = Category III

Criteria for Wetland Categories

Category I Wetlands

Note: A wetland is considered Category I if it meets any one of the following five criteria.

Criterion 1

Wetlands that have documented occurrences recognized by federal or state agencies of Threatened or Endangered species of plant, wildlife, or, fish species.

Criterion 1a: Plant Species

The wetland contains individuals of Federal or State-listed Threatened or Endangered plant species.

Source of Information
Contact the Washington Natural Heritage Program by mail to determine if any plant species of concern have been located in or near the study area. A sample letter is included in Appendix 1. Send a map of the study area along with township, range, and section information. A fee may be charged for a search of the Natural Heritage Program database. Searches for public agencies (i.e. local governments) and non-profit organizations are discounted.

Washington Natural Heritage Program
Department of Natural Resources
Division of Land and Water Conservation
P.O. Box 47047
Olympia, Washington 98504-7047

The Washington Natural Heritage Program maintains a comprehensive database of site-specific information on reported occurrences of Sensitive, Threatened, Endangered and known historic occurrences of Possibly Extinct or Extirpated plant species in Washington. At the time of writing most wetlands in Washington have not been surveyed for the occurrence of State Sensitive, Threatened, Endangered plant species.

> ***Note:*** Unidentified plant species collected during site visits should be identified only by qualified botanists familiar with the Pacific Northwest flora. If the study site is an historic collection site for a Possibly Extinct or Extirpated plant species or is within 1/2 mile of such a site, then a rare plant survey by a qualified botanist familiar with the Pacific Northwest flora should be conducted to determine the presence of the species of concern.

Justification
Some species of Threatened or Endangered plants are found in wetland habitats and need to be protected. An example is *Howellia aquatilis* in Clark and Spokane Counties. Table 5. lists State-listed Threatened and Endangered species that may be found in wetlands. ***Note:*** This list is continually changing, and if there are any questions the user should check with the Natural Heritage Program.

Table 4. State-listed Threatened & Endangered plant species that may be found in wetlands (from Washington Natural Heritage Program 1990)	
Threatened Species	
Scientific Name	Common Name
Calamagrostis crassiglumis	Thick-glume Reedgrass
Corydalis aquae-gelidae	Clackamas Corydalis
Lobelia kalmii	Kalm's Lobelia
Platanthera chorisiana	Choriso Bog Orchid
Sisyrinchium sarmentosum	Pale Blue-eyed Grass
Endangered Species	
Scientific Name	Common Name
Cypripedium calceolus var. *parviflorum*	Yellow Lady's Slipper
Delphinium viridescens	Wenatchee Larkspur
Howellia aquatilis	Howellia
Liparis loeselii	Twayblade
Polemonium pectinatum	Washington Polemonium
Rorippa columbiae	Persistentsepal Yellowcress

Criterion 1b: Animal Species

The wetland contains documented occurrences of Federal and State- listed Threatened or Endangered wildlife species managed by the Washington Department of Wildlife.

Sources of Information

Contact the Department of Wildlife by mail to determine if occurrences of any federal or state listed species has been documented in or near the wetland being studied. A sample letter is included in Appendix 2. Send a map showing the location of the wetlands along with township, range and section information. A fee will be charged for a search of the Washington Department of Wildlife database.

The Department of Wildlife maintains a database of the locations of use areas for wildlife designated as priority species in Washington. The database includes documented breeding sites, colonial or communal roosts, areas of regular concentration and/or locations of individual observations. This information is mapped in a geographic information system. All federally listed or proposed Threatened and Endangered wildlife species occurring in Washington also have State-listed status. There is relatively complete information on occurrences for state-listed or Endangered or Threatened wildlife.

Washington Department of Wildlife
PHS Program, Mail Stop GJ- 11
600 Capital Way North
Olympia, Washington 98501-1091
(206) 664-9476

Justification

There are few listed State Endangered or Threatened species that are confined to wetland habitats. One of the few examples is the Western Pond Turtle *Clemmys marmorata*, a State-listed Threatened species. However, the Peregrine Falcon *Falco peregrinus* and Columbian White-tailed Deer O*docoileus virginianus leucurus*, both State Endangered species, use wetlands as well as other habitats.

Criteria 1c: Fish Species

The wetland contains documented occurrences of State or Federally listed Threatened or Endangered fish species, or races of fish, managed by the Washington Department of Wildlife or the Washington Department of Fisheries.

Sources of Information
Washington Department of Wildlife
PHS Program, Mail Stop GJ-11
600 Capital Way North
Olympia, Washington 98501-1091
(206) 664-9476

Washington Department of Fisheries
115 General Administration Building
Olympia, Washington 98504
(206) 753-6650

Presence of these species is indicated by identifying that river drainage's in which these species are found. Distribution tables or maps can serve as a primary method for determining if wetlands areas are potentially used by listed Threatened or Endangered species. This information can be sought from the Washington River Information System (WARIS), a GIS-based database which provides information on distributions of anadromous fish resident fish and species of concern. Information is available for all Washington rivers and streams at 1:100,000 scale. Information from this database can be acquired from the Washington Department of Wildlife, PHS Program in Olympia. Information on the races of salmon listed as threatened and endangered must be obtained from Washington Department of Fisheries.

Justification
These are wetlands that contain individuals, populations, or priority habitat of State or Federally listed Threatened or Endangered fish species, or races of fish, managed by the Washington Department of Wildlife or the Washington Department of Fisheries.

Criterion 2

Examples of High Quality Native Wetland Communities:

1). The wetland is already on record with the Washington Natural Heritage Program as a high quality native wetland;
OR
2). There is no significant evidence of human-caused changes to topography or hydrology of the wetland (significant changes include clearing, grading, filling, logging of the wetland or its immediate buffer, or culverts, ditches, dredging, diking or drainage of the wetland);
AND,
there are no populations of non-native plants which are currently present and appear to be invading
AND,
there is no significant evidence of human-caused degradation of the water quality of the system.

Source of Information

1). Contact the Washington Natural Heritage Program by mail to determine if a high quality native wetland has been identified in or in the vicinity of the project. A sample letter is provided in Appendix 1. The Washington Natural Heritage Program maintains a data system on high quality wetland systems. The data set is not complete but is well developed for the lowlands west of the Cascade Mountains.

Washington Natural Heritage Program
Department of Natural Resources
Division of Land and Water Conservation
P.O. Box 47047
Olympia, Washington 98504-7047

and/or

2). Site examination as in Field Data Form. Answer the questions if you have adequate information or experience to do so. If not, find someone with the expertise to answer the questions. Then, if the wetland has very little disturbance based on the questions in the Field Data Form contact the Natural Heritage program of DNR.

Justification

Despite the relative abundance of certain types of wetlands, extremely high quality, undisturbed examples of those wetlands are rare. This subcriteria attempts to identify and to afford a high level of protection to the undisturbed character of remaining extremely high quality wetlands in the State.

Criterion 3

Wetlands that are documented as regionally significant waterfowl or shorebird concentration areas.

Source

Contact the Department of Wildlife by mail to determine if the wetland is documented as a regionally significant waterfowl or shorebird concentration area. A sample letter is included in Chapter 2. Send a map showing the location of the wetlands along with township, range and section information.

Washington Department of Wildlife
PHS Program, Mail Stop GJ-11
600 Capitol Way North
Olympia, Washington 98501-1091
(206) 664-9476

Justification

Some wetland areas are of particular importance in the life cycles of migratory birds. The birds use them as breeding sites, as resting or feeding sites along migratory routes or as sites for shelter during storms. Because of the recognized national importance of migratory birds and international obligations it is important to afford these areas high levels of protection.

Criterion 4

Wetlands with irreplaceable ecological functions.

Criterion 4a: Bogs and Fens.

Does the wetland have at least 1/2 acre of contiguous relatively undisturbed bog or fen with a cover of invasive species that is less than 10%;

Source
Wetlands Rating Field Data Form.

Justification
Bogs and fens are distinct wetland types, which are very sensitive to disturbance. Bogs and fens form when organic material accumulates faster than it decomposes. Bog/fen systems, however, form extremely slowly, with organic soils forming at rates approximating one inch per 40 years in western Washington.

Bogs are hydrologically closed systems without flowing water. They are extremely acidic and low in nutrients and the plants which grow in them are specifically adapted to such conditions. Fens normally support a greater diversity of plant species and have greater amounts of available nutrients and a higher pH than bogs. A variety of specialized plants live in bogs and fens. Thus, minor changes in the hydrology or nutrient levels in these systems can have major adverse impacts on the plant communities. Peat systems also provide significant habitat for a variety of wildlife species and perform important hydrologic functions including groundwater and stream recharge.

The majority of the bogs/fens observed in western Washington have been degraded through hydrologic modification and reduction in species diversity and integrity. All remaining relatively undisturbed ones need a high level of protection. In addition, there is no known technology for replicating or creating a bog/fen.

Criterion 4b: Mature Forested Wetlands

Forested wetlands qualify as mature forested wetlands when at least 50% of the forest canopy contains evergreen trees that are more than 80 year old, or deciduous trees that are older than 50 years;
OR
50% of the forest canopy consist of trees taller than 50', and the structural diversity is high as characterized by a multi-layer community of trees > 50' tall and trees 20'-49'tall and shrubs and herbaceous groundcover;
AND
< 25 % of the cover in the herbaceous/ground cover or shrub class are invasive exotic plant species listed in Table 3.

Source
Wetlands Rating Field Data Form.

Justification
Forested wetlands are important because of the variety of functions that these wetlands provide and the very long time that they take to develop. Mature forested wetlands require at least 50 years to develop and are very valuable for wildlife habitat when left undisturbed.

Forested wetlands have exceptionally high functional values for wildlife habitat due to the multiple layers of vegetation which provide a variety of food, breeding and nesting sites, and thermal and hiding cover. Some forested wetlands are associated with standing water during all or part of the year, which makes them extremely valuable, especially when the surrounding area is arid or semi-arid. Birds, mammals, and amphibians often reach their greatest densities and diversity within forested wetlands.

The tree canopy moderates the temperature within the wetland so that it is cooler in summer and warmer in winter than surrounding open areas and this reduces energy needs for wildlife. Trees may shade open water providing cover for fish, and downed trees provide large organic debris essential for fish habitat structure in streams. Leaves and insects which are important in the aquatic food chain drop into the water from overhanging trees.

Riparian forested wetlands are those forested wetlands along streams and rivers. Riparian forests may contain both wetland and non-wetland forest components. Non-wetland riparian forests are extremely important as a transition between wetland and upland. Floodwaters are slowed and diminished as they spread out in riparian-forested wetlands and the trees and other vegetation trap sediments from the floodwaters. Sediments, shorelines and streamsides are stabilized by the extensive root systems and protected from erosion by vegetative cover.

Criterion 4c: Estuarine Wetlands

1. Wetlands listed as National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park, or Educational, Environmental or Scientific Reserves designated under WAC 332-30-151.

2. Estuarine wetlands > 5 acres;

3. Estuarine wetlands 1-5 acres that meet any 3 of the following 4 criteria:

- at least two estuarine wetland habitat classes (Dethier, 1990);
- minimum existing evidence of human related physical alteration such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species;
- surface water connection with tidal saltwater or tidal freshwater;
- at least 75% of the wetland has a 100' buffer of ungrazed pasture, open water, shrub or forest.

Source
Wetlands Rating Field Data Form

Justification
Estuaries are among the most highly productive and complex ecosystems where tremendous quantities of sediments, nutrients and organic matter are exchanged between terrestrial, freshwater and marine communities. This availability of resources benefits an enormous variety of plants and animals. Fish, shellfish and birds are the most visible along with emergent plants. However, there are also a high variety of other life forms, for example; diatoms, algae and invertebrates.

Estuarine systems have substantial economic value as well as environmental value. All Washington State estuaries have been modified to some degree, bearing the brunt of development pressures through filling, drainage, port development and disposal of urban and industrial wastes. The over-harvest of certain

selected economic species has also modified the natural functioning of estuarine systems. Many Puget Sound estuaries such as the Duwamish, Puyallup, Snohomish and Skagit have been extensively modified. Up to 99% of some estuarine wetland areas have been lost.

Criterion 4d: Eelgrass and Kelp Beds

1) When an Eel grass bed is present;
OR
2) When a floating or non-floating kelp bed is present which has > 50% macro algal cover in the month of August or September.

Source
Wetlands Rating Field Data Form

Justification
Broad bladed eelgrass Zostera *marina* is a vascular plant, which grows in the marine environment. Together with floating kelp beds *Nereocycstis leutkeana* and *Macrocystis integrifolia* as well as other non-floating kelp species, these plants provide some of the most highly productive and unique habitats in the marine environment.

The importance of these plants in the ecosystem fall primarily into four areas: productivity, habitat, hydrodynamics and exploitative. Marine plants, particularly kelps, provide a major input of detritus and dissolved organic matter to the food web. They provide a significant habitat for a number of organisms as a place of refuge and a substrate for reproduction. Eelgrass and kelp beds reduce current flow and wave action, creating a protected environment and influencing beach slope stability. Finally, seaweeds are a source of human food, fodder, fertilizer and valuable extracted chemicals, (Mumford, 1988).

Criterion 5

Documented Wetlands of Local Significance (see page 47)

Category II Wetlands

***NOTE*:** A wetlands is considered Category II if it meets none of the Category I criteria and it meets any one of the following five criteria.

Criterion 1

Documented occurrences of sensitive species of plant, animal or fish recognized by federal or state agencies.

Criterion 1a: Plant Species

Wetlands that contain individuals of State-listed Sensitive plant species.

Sources of Information
Contact the Washington Natural Heritage Program by mail to determine if any plant species of concern have been located in or near the study area. A sample letter is included in Appendix 1. Send a map of the study area along with township, range and section information. A fee may be charged for a search of the Natural Heritage Program database. Searches for public agencies (i.e. local governments) and non-profit organizations are free.

> Washington Natural Heritage Program
> Department of Natural Resources
> Division of Land and Water Conservation
> P.O. Box 47047
> Olympia, Washington 98504-7047

The Washington Natural Heritage Program maintains a comprehensive database of site-specific information on reported occurrences of Sensitive, Threatened, and Endangered plant species in Washington. Unidentified plant species collected during site visits should be identified by qualified botanists familiar with the Pacific Northwest flora. Most wetlands in Washington have not been surveyed for the occurrence of State Sensitive, Threatened, and Endangered plant species.

Justification
Some species of Sensitive plants are found exclusively or predominantly in wetland habitats. Examples include interrupted sedge *Carex interrupta* scattered throughout Washington, and swamp gentian *Gentiana douglasiana* in Clallam and King Counties. Table 6. lists State-listed Sensitive species that may be found in wetlands.

TABLE 6. State-listed Sensitive plant species that may be found in wetlands. (From Washington Natural Heritage Program 1990).

Scientific name	Common name
Adiantum pedatwn ssp. *subpumilum*	dwarf maidenhair fern
Aster junciformis	rush aster
Bolandra oregana	bolandra
Botrychium lanceolatum	lance-leaved grape-fern
Botrychium lunaria	moonwort
Botrychium minganense	Victorin's grape-fern
Botrychium pinnatum	St. John's moonwort
Botrychium simplex	little grape-fern
Carex aenea	bronze sedge
Carex anthoxanthea	yellow-flowered sedge
Carex atrata var. atrosquama	blackened sedge
Carex atrata var. erectaerect	blackened sedge
Carex buxbaumii	Buxbaum's sedge
Carex comosa	bristly sedge
Carex densa	dense sedge
Carex hystricina	porcupine sedge
Carex interrupta	green-fruited sedge
Carex macrochaeta	large-awn sedge
Carex norvegica	Scandanavian sedge
Carex pauciflora	few-flowered sedge
Carex paupercula	poor sedge
Carex pluriflora	several-flowered sedge
Carex saxatilis	russet sedge
Carex scirpoidea var. scirpoidea	Canadian single-spike sedge
Carex scopulorum var. prionophylla	saw-leaved sedge
Carex stylosa	long-styled sedge
Carex sychnocephala	many-headed sedge
Chrysosplenium tetrandum	northern golden-carpet
Cicuta bulbifera	bulb-bearing water-hemlock
Cimicifuga elata	tall bugbane
Coptis asplenifolia	gold-thread
Cyperus rivularis	shining flatsedge
Dodecatheon pulchellum	few-flowered shooting star
Eleocharis rostellata	beaked spike-rush
Epipactis gigantea	giant helleborine
Eriophorum viridicarinatum	green-keeled cotton-grass
Erythronium revoluttun	pink fawn-lily
Fritillaria camschatcensis	black lily
Gentiana douglasiana	swamp gentian
Gentiana tenella	slender gentian
Geum rivale	water avens
Illiamna longisepala	longsepal globemallow
Isoetes nuttallii	Nuttall's quillwort
Juncus kelloggi	Kellogg's rush
Limosella acaulis	southern mudwort
Listera borealis	northern twayblade
Lobelia dortmanna	water lobelia

TABLE 6. Continued:

Scientific name	Common name
Lycopodium inundatum	bog clubmoss
Meconella oregana	meconella
Mimulus pulsiferae	Pulsifer's monkeyflower
Mimulus suksdorfii	Suksdorf's monkeyflower
Montia diffusa	branching montia
Muhlenbergia glomerata	Marsh muhly
Oryzopsis hendersonii	Henderson's ricegrass
Parnassia fimbriata var hoodiana	fringed grass-of-Parnassus
Parnassia kotzebuei	Kotzebue's grass-of-Parnassus
Parnassia palustris	northern grass-of-Parnassus
Pedicularis rainierensis	Mt. Rainier lousewort
Platanthera obtusata	small northern bog-orchid
Platanthera sparsiflora	canyon bog-orchid
Potamogeton obtusifolius	blunt-leaved pondweed
Puccinellia nutkaensis	Alaska alkaligrass
Ranunculus longirostris	long-beaked water buttercup
Salix candida	hoary willow
Salix maccalliana	MacCall's willow
Salix sessilifolia	soft-leaved willow
Salix tweedyi	Tweedy's willow
Samolus parviflorus	water pimpernel
Sanicula marilandica	black snake-root
Sanguisorba menziesd	Menzies' burnet
Saxifraga integrifolia var. apetala	swamp saxifrage
Sisyrinchium septentrionale	blue-eyed grass
Spartina pectinata	prairie cordgrass
Spiraea densiflora var. splendens	subalpine spirea
Teucrium canadense ssp. viscidum	woodsage
Thalictrum dasycarpum	purple meadowrue
Tillaea aquatica	pygmy-weed
Tillaea erecta	erect pygmy-weed
Utricularia intermedia	flat-leaved bladderwort
Vaccinium myrtilloides	blueberry

Criterion 1b: Animal Species

Does the wetland contain documented occurrences of Federal or State- listed sensitive wildlife species managed by the Washington Department of Wildlife?

Sources of Information

Washington Department of Wildlife
PHS Program, Mail Stop GJ-11
600 Capital Way North
Olympia, Washington 98501-1091
(206) 664-9476

Justification
Some State-listed Sensitive species are confined to wetland habitats and others use wetlands for some essential life needs and other habitats for other essential life needs.

Criterion 1c: Fish Species
The wetland contain documented habitats of State or Federally-listed Sensitive fish species managed by the Washington Department of Wildlife or the Washington Department of Fisheries.

Sources of Information

Washington Department of Wildlife
PHS Program, Mail Stop GJ-11
600 Capital Way North
Olympia, Washington 98501-1091
(206) 664-9476

Washington Department of Fisheries
115 General Administration Building
Olympia, Washington 98504
(206) 753-6650

Justification
At the time of this publication, no fish species or races are currently listed State or Federal Sensitive species.

Criterion 2
Documented priority habitats and species recognized by state agencies.

Criterion 2a: Wildlife Species
The wetland contains priority habitats and species documented by Washington Department of Wildlife's Priority Habitats and Species Program.

Sources of Information

Washington Department of Wildlife
PHS Program, Mail Stop GJ- 11
600 Capitol Way North
Olympia, Washington 98501-1091
(206) 664-9476

The Washington Department of Wildlife, through its Priority Habitats and Species Programs has established a database documenting locations of priority species use areas and priority habitats with a diversity of wildlife.

Contact the Department of Wildlife by mail to determine if a priority habitat or species has been documented in or near the wetland being studied. A sample letter is included in Appendix 2. Send a map showing the location of the wetlands along with township, range and section information. A fee will be charged for a search of the database. Department of Wildlife considers all wetlands a priority and has National Wetland Inventory Maps in their database. Unless special request is made, the total National Wetland Inventory map information is not provided. Information is provided on wetlands that overlap with maps of priority species or other priority habitats to provide a subset of wetlands that meet Category 11(ii) requirements.

Criterion 2b: Fish Species

Does the wetland provide habitat for priority fish species managed by the Washington Department of Wildlife?

Source of Information
The presence of a priority fish species in a river or stream reach can be identified from the Washington Department of Wildlife's WARIS database, or by consulting Washington Department of Wildlife biologists. A list of priority fish species is provided in Table 7.

Washington Department of Wildlife
PHS Program, Mail Stop GJ-11
600 Capital Way North
Olympia, Washington 98501-1091
(206) 664-9476

Washington Department of Fisheries
115 General Administration Building
Olympia, Washington 98504
(206) 753-6650

Table 7. Priority fish species managed by Washington Department of Wildlife that are dependent upon vegetated wetlands

Scientific Name	Common Name	Special Designation
Salvelinus confluentus	Bull Trout	FC2
Salvelinus malma	Dolly Varden	
Oncorhynchus nerca	Kokanee Salmon	
Catostomus platyrhynchus	Mountain Sucker	SC
Prosopium williamsoni	Mountain Whitefish	
Pronopium coulteri	Pygmy Whitefish	SC
Oncorhynchus mykiss	Rainbow & Steelhead Trout	
Oncorhynchus clarki	Cutthroat Trout	

SC = State Species of Concern
FC2 = Proposed Federal Threatened, Candidate 2 status

Criterion 3

Wetlands with significant functions which may not be adequately replicated through creation or restoration.

Criterion 3a: Estuarine Wetlands

Estuarine wetlands 1-5 acres not meeting the criteria for Category I;

OR

Estuarine wetlands < 1 acre and meeting all the following 4 criteria:

-at least two estuarine wetland habitat classes (Dethier, 1990);

AND

-minimum existing evidence of human related physical alteration such as diking, ditching, filling, cultivation, grazing or the presence of non-native plant species);

AND

-surface water connection with tidal saltwater or tidal freshwater;

AND

-at least 75% of the wetland has a 100' buffer of ungrazed pasture, open water, shrub or forest.

Criterion 3b - Bogs and Fens

Bogs and fens that are 1/4 - 1/2 acre in size (see discussion of bogs and fens under Category 1).

Criterion 4

Freshwater wetlands with significant habitat value (Greater than or equal to 22 points).

Sources of Information

Wetlands Rating Field Data Form.

Justification

The detailed system of assessing significant habitat value was developed to identify wetlands, which have characteristics that provide high levels of wetland functions.

Criterion 5

Wetlands of Local Significance (see page 47).

Category III Wetlands

Note: A wetland is considered Category III if it meets none of the Category I or Category II criteria and meets any one of the following three criteria.

Criteria:

1). Wetlands where the habitat score for significant habitat value is less than or equal to 21 points;
OR
2). Wetlands identified as Category III wetlands of local significance;
OR
3). Estuarine wetlands less than 1 acre which fail to meet all four of the criteria listed under 3a (pg.).

Sources of Information

i). Wetlands Rating Field Data Form; or
ii). Local Government; or
iii). Wetlands Rating Field Data Form.

Justification
These wetlands provide important functions and values. They are important for a wide variety of wildlife species. Generally these wetlands will be smaller, have less diverse vegetation. They can often be more isolated than Category II wetlands.

Category IV Wetlands

Criteria
i). Wetlands less than 1 acre and, hydrologically isolated and, comprised of one vegetated class that is dominated (> 80% areal cover) by one species from the list in Table 4;
OR
ii). Wetlands less than two acres and, hydrologically isolated, with one vegetated class, and > 90% of areal cover is any combination of species from the list in Table 3;
OR
(iii) Wetlands that are ponds smaller than 1 acre and excavated from uplands, without a surface water connection to streams, lakes, rivers, or other wetlands.

Source of Information
Wetlands Rating Field Data Form.

Justification
These wetlands are the smallest and have the least diverse vegetation. These are wetlands that we should be able to replace, and in some cases be able to improve from a habitat standpoint. However, these wetlands do provide important functions and values, and should to some degree be protected. In some areas, for example on islands, these wetlands may be providing important groundwater recharge and water pollution prevention functions, and therefore may be more important from a local point of view. They may also be providing important flood storage capacity, and therefore be important in reducing both the extent and frequency of flood events. Thus, regional differences may call for a more narrow definition of this category.

Wetlands of Local Significance

Criteria

Any wetland, identified and adopted by a local government as part of it's planning process, following public review and appeals, and satisfying sub-criteria such as those listed below:

a) Wetland is locally rare;

OR

b) is documented as a groundwater recharge area, or contributes functional value to a local government water quality or flood mitigation program;

OR

c) provides habitat for fish and wildlife that is considered important by the local community;

OR

d) is a recognized or planned educational site;

OR

e) is part of a recognized or planned recreation resource;

OR

f) is part of an open space or planned open space resource;

OR

g) is planned for restoration or enhancement as a part of a local government protection program;

OR

h) is part of a wildlife corridor or connects wetland areas of greater value;

OR

i) is recognized and valued as a part of the local landscape;

OR

j) is considered sensitive to development or disturbance;

OR

k) is considered irreplaceable;

OR

1) is a buffer area for a growth management boundary;

OR

m) is an integral part of a wetland system that would benefit from better overall protection;

OR

n) satisfies other criteria developed by local government in its comprehensive planning process.

Source of Information

The use of the wetland of local significance concept should be fully described within the planning documents of the local jurisdiction. To be recognized as WOLS, each wetland should be specifically identified and adopted as a "wetland of local significance" under local government legal authorities. The WOLS concept is intended to provide local government flexibility in integrating the local government model ordinance for wetlands with the requirements of local governments to protect critical areas, including wetlands, under the Growth Management Act.

Justification

The purpose of criteria for wetlands of local significance (WOLS) is to provide ways for local government to protect wetlands within the wetlands rating system to a degree higher than that afforded by strict application of the other state criteria. It may be that particular local wetlands require more protection than that afforded by a strict application of rating criteria. For example wetlands may be critical to a local water supply, or provide for storage capacity for floodwaters. The wetlands may provide a combination of values that, when considered together require a higher level of protection.

By using the WOLS concept a local government could: promote an otherwise Category IV wetland to Category III, II or I protection levels, promote an otherwise Category III wetland to Category II or I protection levels, or promote an otherwise Category II wetland to Category I protection levels.

WOLS could also be identified and categorized on the basis of inter-local agreements where local government boundaries arbitrarily divide a wetland. This would be essential when additional protection of a watershed-wide wetland function was sought (i.e. flood-storage capacity) and the watershed is divided by multiple jurisdictions.

For inventory purposes, WOLS would be identified on the basis of strict application of the criteria, regardless of the level of protection afforded them. Local Government inventories should record both ratings. The WOLS concept is not intended to allow a reduction of protection to wetlands where protection is already required by local, state, or federal laws.

Glossary

Aquatic bed wetland class: Means any area of open water with rooted aquatic plants such as lily pads, pondweed, etc. Aquatic bed vegetation does not always reach the surface, and care must be taken to look into the water.

Areal cover: Means the % of vegetation covering any area of vegetated wetland. It is used to decide what classes are present in the wetland. Areal measurements are those made as if the wetland were being viewed from the air.

Bogs: A type of wetland found on organic soils, usually peat, that is nutrient poor, has a low pH (acidic), and whose major source of water is rainfall rather than streams or groundwater. True bogs are formed by the accumulation of organic matter produced by Sphagnum mosses, and are often characterized by the highly specialized plant species that grow there.

Connection to a stream (Q.4g.): A wetland is connected if some part of the wetland boundary has a surface water connection to seasonal or perennial flowing surface water, including floodwater, via natural or man-made channel, or an area of open water. The connection could be through a culvert, or a series of culverts.

Emergent wetland class: any area of vegetated wetland where non-woody vegetation (such as cattail, grasses, sedges, etc.) comprises at least 30% of area] cover.

Fen: A type of wetland found on organic soils, usually peat, where herbaceous hydrophytes are the dominant vegetation present. Nutrients in fens range from rich to poor and may have a low pH.

Forested wetland class: Means any area of vegetated wetland where woody vegetation over 20 ft. (such as alder, cedar, hemlock, cottonwood, and some willow species, etc.) comprises at least 30% of the areal cover.

Habitat area (Q4i): Means any forested, shrub and herbaceous areas that could be used by wildlife species that use wetlands to provide a part of their life cycle needs. Developed areas such as farming and urban landscapes would not generally be considered as habitat areas. However, there are important areas within urban areas and farming landscapes that are connected to wetlands by corridors, and these areas function to provide life cycle needs to some wildlife.

Hydrologically isolated wetland (for the determination of Category IV wetlands): Means those regulated wetlands which 1) have no surface water connection to a lake, river or stream; 2) are outside of and not contiguous to any 100-yr floodplain of a lake, river, or stream; and 3) have no contiguous hydric soil between the wetland and any surface water.

Open water wetland class: Means any area of standing water present for more than one month at any time of the year without emergent, scrub-shrub or forested vegetation. Open water includes any aquatic beds that are smaller than 1/4 acre. At certain times of year it may be difficult to determine if open water (with or without aquatic beds)are present. Use aerial photographs, talk with landowners or neighbors, look for dried or muddy areas without vegetation which indicate that open water was present earlier in the year, or in past years. Estimate the acreage of open water or the pct. of total acreage. Cite your source of information for making this determination.

Priority Habitat: An area associated with a given species, and which, if altered, may reduce the likelihood that the species will maintain or increase population over the long term. These might include areas of high relative density, breeding habitat, winter range, and movement corridors. Priority habitats might also include areas that are of limited availability or high vulnerability to alteration, such as cliffs, talus, wetlands, etc.

Priority Species: Animal species that are of concern due to their low population and/or their sensitivity to habitat manipulation. This includes all federal or state listed or candidate threatened, endangered, or sensitive species.

Riparian corridor (Q.4i): Means an area between aquatic and terrestrial ecosystems defined by the presence of vegetation that requires moist conditions and, usually, periodic free flowing water. The benefits of vegetation cover and food sources and the availability of water in riparian corridors means that they are likely to be preferentially used by wildlife and enable wildlife movement between wetlands.

Scrub-shrub wetland class: Means any area of vegetated wetland where woody vegetation less than 20 ft. tall (such as most willow species, hardhack, dogwood, salmonberry, etc.) comprises at least 30% of the areal cover.

Significant Habitat area (Q.4i): Means large, high-quality natural land or water areas such as parks, reserves and forests, or areas in essentially natural condition that could be used by wildlife species that use wetlands to provide a part of their life cycle needs.

State Endangered Species: are those species that are seriously threatened with extirpation throughout all or a significant portion of their range within Washington.

State Sensitive Species: Animal and plant species that could become threatened in Washington due to limited population size and distribution, sensitivity to disturbance during critical stages in their life cycle, or dependence on a very specific habitat type.

State Threatened Species: Means Animal and Plant species that are not presently Endangered in Washington but could become so in the foreseeable future.

Stream: Means there is at least a seasonal flow of water that is in one predominant direction and there is a defined bank or series of banks containing the water.

Appendix 1

Sample Letter to Washington Natural Heritage Program Requesting Information

_____199__

Environmental Review Coordinator
Washington Natural Heritage Program
Department of Natural Resources
P.O. Box 47047
Olympia, WA 98504-7047

To Whom This Concerns:

_____ is planning to_____ in
(describe activity)

Section _____, Township_____, Range_____,

in the_____drainage, approximately ____ miles (insert directions) of the town of _____. The area of the proposed activity contains a wetland(s). (Include a brief description of the proposed activity.)

In order to assist us in evaluating this/these wetland(s). We request the following information:

In the vicinity of the proposed activity:

* Is there any record of the presence of wetland/s considered to be a high quality native wetland by the Washington Natural Heritage Program?

* Is there any record of the presence of plant taxa which are Federally listed as Endangered or Threatened, or which are candidates for listing?

* Is there any record of the presence of plant taxa which are listed by the Washington Natural Heritage Program as Endangered, Threatened, or Sensitive in Washington?

Enclosed are maps of the proposed activity and the location of the wetland(s). We understand that we may be billed and must remit payment prior to receiving the results of the data search. If you have any questions, please contact _____ at (__)_____.

Thank you for your assistance.

Sincerely,

enclosures: Map of _____

Appendix 2

Sample letter to Washington Department of Wildlife to request information.

_____ 199__
Washington Department of Wildlife
PHS Program, Mail Stop GJ-11
600 Capitol Way North
Olympia, Washington 98501-1091

To Whom This Concerns:

_____is planning a (_____) in the _____
(describe activity)
drainage, approximately _____miles ___(direction)_____ of the town of _____.
Sec.____, T._____, R.____, ____W.M., _____ County. (Include a brief description of the proposed activity.)

Please provide us with the data necessary to rate this wetland using Department of Ecology's system. Those data should include:

- occurrences of State or Federal listed candidate, Threatened, Endangered, and Sensitive fish or wildlife.

- documented regionally significant waterfowl or shorebird concentration areas.

- documented priority habitats or species areas.

Enclosed are maps of the proposed activity and the location of the wetland(s). We understand that we may be billed for this data upon request. If you have any questions, please contact Lea Knutson at (206) 664-9476.

Thanks in advance for your help.

Sincerely,

enclosure: Map of_____

Appendix 3

Sample letter to Washington Department of Fisheries to request information.

_____1991

Data Base Manager
Washington Department of Fisheries
115 General Administration Building
Olympia, Washington 98504

To Whom This Concerns:

_____ is planning a (_____) in the _____
(describe activity)
drainage, approximately _____ miles (direction) of the town of _____, (Sec. __, T. ___, R. ___). The area of the proposed activity contains (a) wetland(s). (Include a brief description of the proposed activity.)

Therefore we are requesting that WDF answer and document the following questions for this/these wetland(s):

*Does the wetland contain documented habitats of State or Federally listed or State or Federal candidate Threatened or Endangered fish species, or races of fish, managed by the Washington Department of Wildlife or the Washington Department of Fisheries?

*Does the wetland contain documented habitats of State or Federally listed or candidate Sensitive fish species managed by the Washington Department of Wildlife or the Washington Department of Fisheries?

Enclosed are maps of the proposed activity and the location of the wetland(s). We understand that we may be billed and must remit payment prior to receiving the results of the data search. If you have any questions, please contact _____at (___)_____.

Thanks in advance for your help.

Sincerely,

enclosure: Map of_____

Appendix 4

The Review Process: Wetlands Rating System Technical and Implementation Review Teams

Known wetlands specialists were contacted by phone in April 1991 to determine whether they were willing to review draft documents. A team of about 35 Technical Reviewers (those marked by an asterisk in the list below) was established and a draft technical review of the rating system was sent out for comment. Following consideration of comments from the Technical Review Team, a field methodology was developed. In May 1991 copies of the draft wetlands rating system, including a revised draft field methodology were sent to an Implementation Review Team. The Implementation Review Team comprised the members of the Technical Review Team plus about 20 other people involved in developing local government wetlands plans.

All members of the Implementation Review Team were invited to review, and if possible, field-test the draft wetlands rating system. The Department of Ecology undertook in-house field-testing and in some cases was able to field test the system with members of the Implementation Team. Where possible, all comments from reviewers were taken into account in preparing the methodology and the final document.

WETLANDS RATING SYSTEM TECHNICAL AND IMPLEMENTATION REVIEW TEAMS.

Paul Adamus*
USEPA
Corvalis OR

Laura Arnold
San Juan County Planning Department
Friday Harbor

John Andrews*
Washington Department of Wildlife
Spokane

Dennis Beich
City of Everett
Everett

Ken Bierly*
Oregon Division of State Lands
Salem OR

Jim Blake
Soil Conservation Service
Republic

Marc Boule*
Shapiro and Associates
Seattle

Steve Campbell
Soil Conservation Service
Spokane

Sue Comis
Pierce County Planning
Tacoma

Sarah Cooke*
c/- PENTEC
Edmonds

Rex Crawford*
DNIZ Natural Heritage Program
Olympia

Paula Ehlers
Thurston County Planning
Olympia

Mike Erkkinen
Pierce County Planning
Tacoma

Banks Evans
Tacoma City Planning and Development
Tacoma

Carol Burnthall
Island County Planning Department
Coupeville

Joel Fordenthal
Clallam County Division of Water Quality
Sequim

Marilyn Freeman
Snohomish County Planning
Everett

Bob Frenkel*
Department of Geoscience
Oregon State University
Corvallis OR

Bob Furstenburg*
King County Storm Water Management
Seattle

Phil Gaddis
Clark County Dept. of Public Service
Vancouver

Terry Galvin
Whatcorn County Planning
Bellingham

Jim Good*
College of Oceanography
Oregon State University
Corvalis OR

Rich Horner*
Center for Urban Water Resources Mgt.
University of Washington
Seattle

Lou Jurs*
Bureau of Land Management
Spokane

Will Keller*
Soil Conservation Service
Okanogan

Mike Folsom*
Department of Geography
Eastern Washington University
Cheney

Kathy Kunz*
US Army Corps of Engineers
Seattle

Linda Kunze
DNR
Olympia

Ivan Lines*
Soil Conservation Service
Spokane

Tina Miller*
King County Building & Land
Development
Bellvue

Steve Morrison
Thurston County Planning
Olympia

Tom Mumford*
Department of Natural Resources
Olympia

Kerry Paul-Reese
College of Forestry
University of Idaho
Moscow ID

Jim Pearson
Jefferson County
Port Townsend

Chuck Perry*
Washington Department of Wildlife
Moses Lake

Doug Pineo*
Department of Ecology
Spokane

Mary Kentula*
USEPA
Corvalis OR

Bud Kovalchik*
U.S. Forest Service
Colville

Dave Kaumheimer*
USF&WS
Moses Lake

Betty Roderick*
Washington Department of Wildlife
Olympia

Emily Roth
Oregon State Department of Lands
Salem OR

Dyanne Sheldon*
Sheldon and Associates
Seattle

Billy Sornorall
Grant County Planning
Ephrata

Robert Steele
Washington Department of Wildlife
Omak

Richard Sumner
USEPA
Corvalis OR

Ron Thom
Marine Sciences Laboratory
Sequirn

Alisa Ralph*
USF&WS
Olympia

Brent Renfrow*
Washington Department of Wildlife
Yakima

Carol Richmond
Department of Natural Resources
Olympia

Gary Voerman
USEPA
Seattle

Steve Wells
Washington State DCD
Olympia

Paul Wilson
Pend Oreille County Planning Dept.
Newport

Al Wald*
Department of Ecology
Olympia

Bob Zeigler*
Washington Department of Wildlife
Olympia

Gordy Zillges*
Washington Department of Fisheries
Olympia

Ryan Zulauf
Dept. Urban and Regional Planning
Eastern Washington University
Cheney

Appendix 5

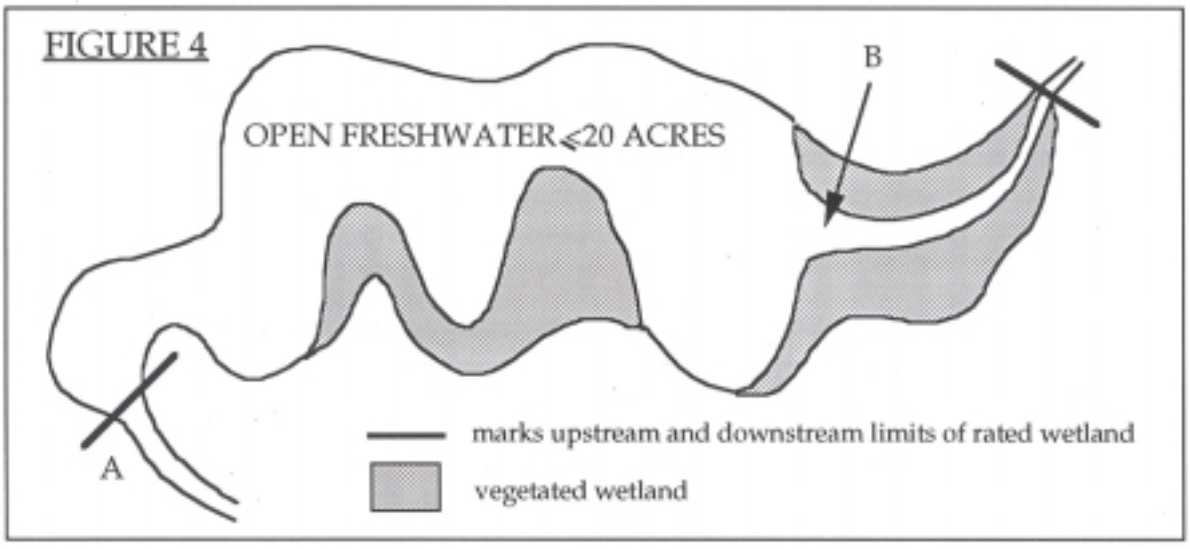
Note: This appendix describes the criteria to be used for establishing wetland boundaries for rating in several situations where they are not obvious.

Wetlands divided by artificial boundaries such as property lines, roads, or railroad embankments:

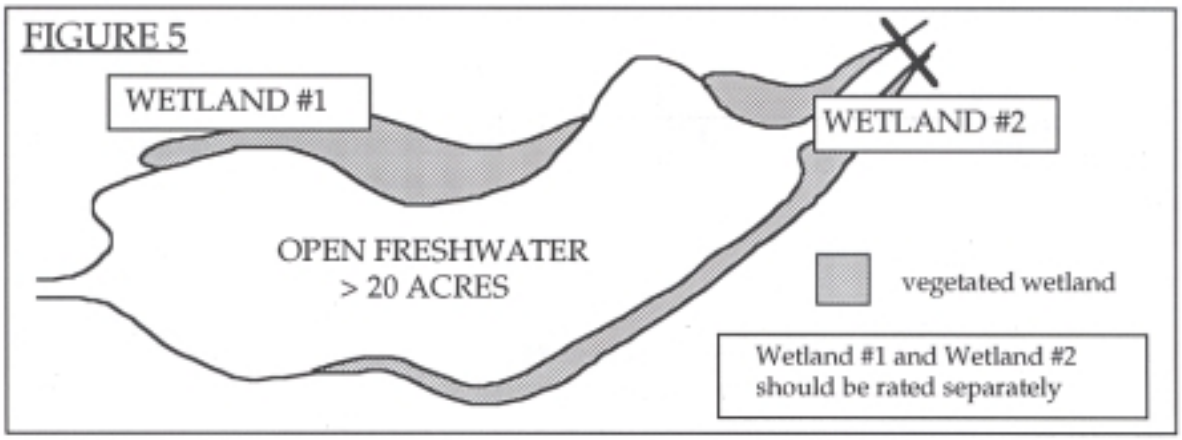
Wetlands should be rated without regard to property boundaries. When a wetland is divided by a man made feature, for example a road embankment, the wetland should be rated as if it is not divided provided there is a LEVEL surface water connection between the two parts of the wetland that permits flow of water, fish, or other organisms in both directions. For example, if there are wetlands on either end of a culvert under a road, and both sides of the culvert are partially or completely underwater, the wetland should be rated as one. Culverts are sometimes diff1cult to locate, especially where they are below the surface of the water. Engineering drawings of constructed roads or other human made features should be consulted to locate surface water connections where there is doubt.

Wetlands contiguous with a larger area of open freshwater, stream, or river:

1) If any part of a vegetated wetland is contiguous with an area of open freshwater less than or equal to 20 acres, rate the entire area including all of the open water and any other wetlands that are contiguous with the open water. This is shown in Figure 4. The boundary of the open water is set at "A" where a stream begins (i.e. there is at least a seasonal flow of water that is predominantly in one direction and there is a defined bank or series of banks containing the water). At "B" there is a similar delineation between open water and stream. Where wetlands are adjacent to open water and streams, they are rated with the open water.

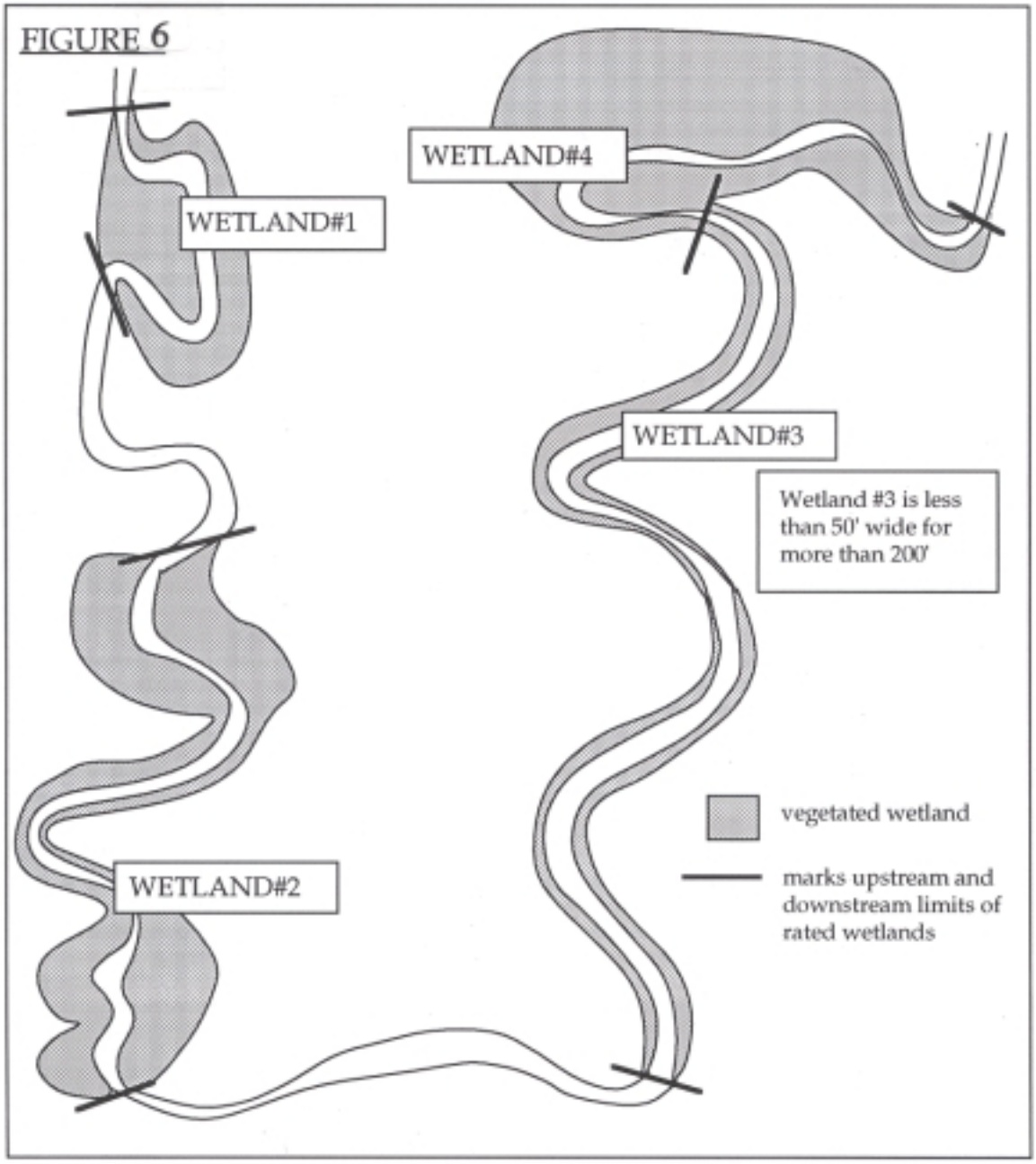


2) If any part of a vegetated wetland(s) is contiguous with an area of open freshwater greater than 20 acres, rate the wetland(s) separately from the open fresh water area. See Figure 5. You should add 1/2 acre for open water, where it applies to each separate wetland you are rating. For example, if the wetland area that you are rating is 4.6 acres and is contiguous with 25 acres of open fresh water you should score the wetland as 4.6 acres plus 1/2 acre = 5.1 acres. Aquatic beds may also be present in the adjacent open water and if present would score points as a wetland class. Where a wetland is contiguous with open water and a stream, i.e. Wetland #2 below, first priority should be given to rating the wetland in relation to the open freshwater area.



3) Any vegetated wetland that is contiguous with a stream may be rated separately when it is separated from any other vegetated wetland by a wetland corridor that is less than 50 feet wide (including the stream channel) for at least 200 feet. See Figure 6.

Wetlands on opposite sides of a stream or river are rated as one wetland, together with the area of the stream itself if the streambed, or its meander channel, averages less than 200 feet in width. If the streambed or its meander channel is more than 200 feet wide then rate each wetland separately with the deepest portion of the stream as the boundary on one side.



Wetlands that form a patchwork on the landscape:

If the wetland is less than one acre but is part of a patchwork or mosaic of wetlands on the landscape that are less than 100 feet apart (on the average), the entire patchwork is to be considered as one wetland if the area of wetlands is more than 50% of the total area of both wetlands and uplands. If these criteria are not met, the wetland is to be considered as an individual wetland. See figure 7.

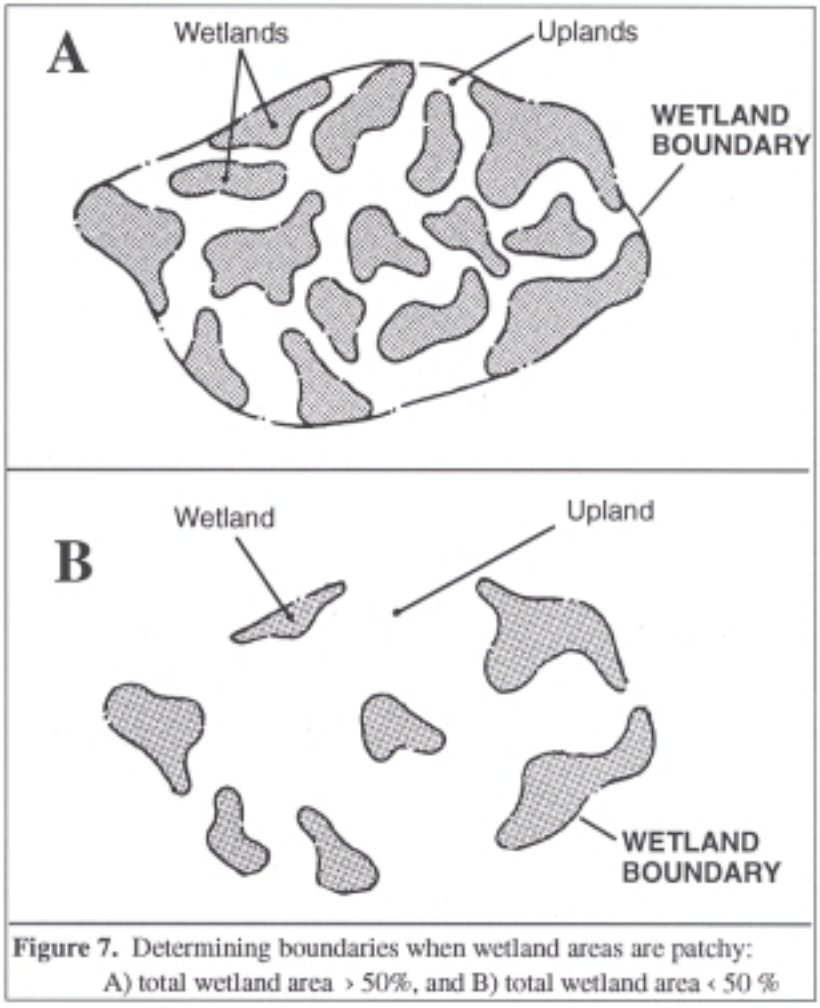


Figure 7. Determining boundaries when wetland areas are patchy: A) total wetland area › 50%, and B) total wetland area ‹ 50 %

Estuarine Wetlands:

For the purpose of this rating system, estuarine wetlands are defined as vegetated areas that are dominated by salt tolerant plants. The size of the vegetated area is to be used in establishing the size of the estuarine wetland in answering the questions on the rating form. By definition, therefore, the rating system is applicable only to some of the important estuarine habitats. Estuarine mudflats, tidal channels and tidal inlets are not rated because their relative value and sensitivity is based on a different set of variables than for vegetated wetlands.

If an area contains patches of salt tolerant vegetation that are 1) less than 600 feet apart and that are separated by mudflats that go dry on a Mean Low Tide, or 2) separated by tidal channels that are less than 100 feet wide; all the vegetated areas are to be considered together in calculating the wetland area.

Appendix 6

Recommended Protection Standards for Use with the Wetland Rating System

Category	I	II	III	IV
Avoidance Criteria	No Practicable Alternative And No Reasonable Use of Property	No Practicable Alternative		No Reasonable Alternative
Replacement Ratios	6 : 1	Forested 3 : 1 Scrub/Shrub 2 : 1 Emergent 2 : 1		1.25 : 1
Buffers	200’ – 300’	100’ – 200’	50’ – 100’	25’ – 50’