

Draft

**NATIONAL WETLANDS INVENTORY
MAP REPORT**

For

King County Update (WA)

Willamette-Pudget Forest Province

*The 1:100,000 Map Units of:
Victoria SE, Seattle NE, Seattle SE*

Field Work Conducted Week of October 1, 2001

U.S. Fish and Wildlife Services
Portland, Oregon

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TABLE OF CONTENTS

I. Introduction.....	Page 2
II. Field Reconnaissance.....	Page 2-3
III. Physical Description of Project Area.....	Page 3-4
IV. Description of Wetland Habitats.....	Page 4
V. Commonly Observed Wetland Vegetation.....	Page 5
VI. Water Regime Description.....	Page 5-6
VII. Imagery.....	Page 6
VIII. Photographic Conventions.....	Page 6-7
IX. Map Preparation.....	Page 7
X. Literature Cited.....	Page 7-8

Introduction

The United States Fish and Wildlife Service's National Wetlands Inventory (NWI) is producing maps showing the location and classification of wetlands and deepwater habitats of the United States. Classification of Wetlands and Deepwater Habitats of the United States, by Cowardin, et al. (1979) is the document used by the NWI to define and classify wetlands. Photo interpretation conventions, hydric soils lists, and wetland plant lists are used in concert with the Cowardin classification system.

The purpose of this map report is to: (1) provide information on the production of NWI maps, including a discussion of photography and interpretation; (2) provide a descriptive crosswalk from NWI wetland codes used on the map to common terminology, and then to representative plant species found at specific wetland sites; and (3) describe local geography, climate, and wetland communities.

Field Reconnaissance

Field reconnaissance is a necessary procedure, in order to accurately interpret aerial photography. Photographic signatures are correlated to the wetland habitat in the field. Collateral information including vegetative communities, soil types and topographic setting are further evaluated to aid in the photointerpretation process. This information is evaluated for seasonality and conditions existing at the time of photography and at ground truthing.

Project Area

Field reconnaissance, for the King County Update project, covered three 1:100,000 maps. This project consisted of two quads within Victoria SE, twelve quads within Seattle NE and nine quads within Seattle SE.

Field Personnel

Elaine Blok – U.S. Fish and Wildlife Service – Region 1 Assistant Regional Wetlands Coordinator

Richard Eastlake – Greenhorne & O'Mara, Inc. – Technical Director

Lisa Ricci – Greenhorne & O'Mara, Inc. – Imagery Analyst

Field Dates

October 1 through October 4, 2001

Aerial Photography

Primary Source Data (100%)

Type: 1992/1993 Black and White DOQQ (Digital Orthophoto Quarter Quads)

Percentage Coverage: All 23 USGS quadrangles of the project area are covered by the DOQQ.

Collateral Data

United States Geological Survey (U.S.G.S.) Quadrangles

National Wetland Inventory (NWI) Data

1999 Color Infra-red (CIR) Aerial Photography, 1:24000 scale

1990 Black and White Aerial Photography, 1:40000 scale (used to fill in holidays)

1980/1981 Color Infra-red (CIR) Aerial Photography, 1:58000 scale

Cowardin's Classification of Wetlands and Deepwater Habitats of the United States

Bailey's Description of the Ecoregions of the United States

Soil Conservation Service preliminary Soil Surveys

Hydric Soils of the United States

National List of Plant Species That Occur in Wetlands: Northwest (Region 9)

WETS Table Data

Physical Description of Project Area

Geography

The King County study area lies predominately in the Willamette-Pudget Forest Province as defined by Bailey's Description of the Ecoregions of the United States (1980). The major rivers within the work area included the Snohomish, Puyallup and Duwamish River and associated creeks and drainages. The landscape consists mix of flat to gently sloping floodplains bordered high terrances and hills, along with other area with glacier till, glacier outwash and lacustrine deposits. Elevation range from sea level to 1500 feet.

Climate

The climate of King County is generally mild throughout the year. The annual temperature averages 48 to 55 degrees Fahrenheit. Rainfall averages 15 to 60 inches per year, peaking in the winter. Summers are usually dry.

Soils

Hydric soil units in the study area include the Buckley silt loam, Orcas peat and Tuckwila muck.

Description of Wetland Habitats

Estuarine Sysytem

Puget Sound is an example of a subtidal body of water in the estuarine sytem

Aquatic beds in the estuarine system are common and should be mapped as a single class if dense or mixed with US. An example of the E2AB/USN is on the fringe of Puget Sound.

Riverine System

Permanent rivers in the study area will be classified R2UBH. An example of the R2UBH classification is the Green River. Riverine channels in the fresh tidal zone are usually classified as R1UBV. Examples of the R1UBV classification are the Snohomish and Puyallup River.

Riverine bars and flats will be classified R2USC and R2USA.

Intermittent streams will be classified R4SBC and R4SBA.

Lacustrine System

Lakes and reservoirs larger than 20 acres in size (Lake Washington) will be classified as L1UBH.

Lakes and reservoirs larger than 20 acres in size with visible stagnant water or evidence of 30% or more aquatic bed will be classified as L2ABH.

Palustrine System

The majority of wetlands in the study area are Palustrine. Emergents are classified PEMF, PEMC and PEMA. The dominant classifications are PEMC and PEMA. There are also ponds with aquatic bed throughout the work area. They will be classified PABH.

Areas of scrub-shrub are classified PSSC and PSSA. Wet forested areas will be classified PFOC and PFOA.

V. Commonly Observed Wetland Vegetation (grouped according to class)

Emergent

<u>Phalaris Arundinacea</u>	reed canary grass
<u>Equisetum spp.</u>	horsetail
<u>Lysichiton Americanum</u>	skunk cabbage
<u>Juncus spp.</u>	rush
<u>Scirpus spp.</u>	bulrush
<u>Typha sp.</u>	cattail
<u>Ranunculus spp.</u>	buttercup

Aquatic Bed

<u>Lemna sp.</u>	duckweed
<u>Nuphar sp.</u>	lily
<u>Polygonum sp.</u>	smartweed
<u>Potamogeton spp.</u>	pondweed

Scrub-Shrub

<u>Spiraea Douglasii</u>	douglas' spiraea
<u>Salix spp.</u>	willow
<u>Rubus spp.</u>	blackberry
<u>Rosa spp.</u>	rose

Forested

<u>Alnus rubra</u>	red alder
<u>Thuja plicata</u>	western red cedar
<u>Populus spp.</u>	poplar
<u>Populus balsamifera</u>	black cottonwood

VI. Water Regime Description

(A) Temporarily Flooded – Surface water present for brief periods during growing season, but water table usually lies well below soil surface. Plants that grow both in uplands and wetlands are characteristic of this water regime.

(B) Saturated – The substrate is saturated to the surface for extended periods during the growing season, but surface water is seldom present.

(C) Seasonally Flooded – Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is extremely variable, extending from saturated to a water table well below ground surface.

(F) Semipermanently Flooded – Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.

(G) Intermittently Exposed – Surface water is present throughout the year except in years of extreme drought.

(H) Permanently Flooded – Water covers the land surface throughout the year in all years.

(J) Intermittently Flooded – Substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity. Weeks or months or even years may intervene between periods of inundation. The dominant plant communities under this regime may change as soil moisture conditions change. Some areas exhibiting this regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes. In areas mapped as intermittently flooded, refer to regional guidelines for specific applications.

(K) Artificially Flooded – The amount and duration of flooding is controlled by means of pumps or siphons in combination with dikes or dams.

Imagery

Overall the emulsion of the 1992/1993 Black and White DOQQ is of good quality. This results in only slight difficulties in determining wetland/upland breaks. Collateral photography and soil surveys will be used whenever possible to assist with delineation.

Photographic Conventions

Emergents within the work area were predominately temporarily flooded (PEMA) and seasonally flooded (PEMC). This classification will be used *a*) in the agricultural areas containing pockets of hydric soil in King County and *b*) along streams with little to no slope at higher elevations.

Forested wetlands found in or along the streams were classified either as PFOC or PFOA. Seasonally flooded and temporarily flooded wetlands, forested wetlands (PFOC/A) were found in some cases and are usually accompanied by a more open canopy and a darker understory. Saturated forested wetlands (PFOB), although less common, maybe found at higher elevations and/or on sloping terrain; or in association with springs on the topographic map.

Scrub-shrub wetlands found along the streams were predominately seasonally flooded (PSSC). PSSC will be applied to stream channels in these areas and in when at least 30% or more of the stream is comprised of wetland scrub-shrub vegetation (per Cowardin, et al).

Scrub-shrub wetlands, in some cases, were found along streams and in hydric soils. These will be classified as seasonally flooded (PSSC) or temporarily flooded (PSSA). These classification will be applied when at least 30% or more of the polygon is comprised of wetland scrub-shrub vegetation (per Cowardin et al.).

Unconsolidated shores associated with rivers that have a whitish or light gray photo signature will be classified as R2USC. Dark gray tones along rivers were generally upland, although some of these areas can be delineated as temporarily flooded (R2USA), based on topography.

Streams that are intermittent on the topographic maps will be classified as seasonally flooded (R4SBC) if water is present on the photo. If the streambed is obscured by shrub or tree canopy PSS or PFO will be used, with either a C or A water regime. If a white streambed is seen (no water present) intermittent streams will be classified as temporarily flooded (R4SBA).

If 30% of aquatic bed (AB) is seen in any body of water in the project area, the entire body of water will be delineated as an aquatic bed wetland.

Ditches will be classified R2UBHx or R4SBCx, unless vegetated. If vegetated they will be classified PSSCx or PEMCx.

Sewage treatment ponds or similar facilities will carry the artificially flooded (K) water regime and the excavated (x) modifier, for example PABKx.

Map Preparation

Wetland delineation and classification is in accordance with Cowardin et al (1979). Further wetland mapping guidance is provided by NWI photographic and cartographic conventions in concert with Regional and National Quality Assurance guidelines and consistency. Delineations are produced through screen interpretation using Arc 8. Two digital layers will be produced for each quad. This work is an update/review of the existing NWI wetland data by "fitting" the existing NWI wetland data to the 1992/1993 B&W DOQQ photography and "Enhancements" will be added to the original wetland data when seen on the 1992/1993 DOQQ. "Changes" are to be made as a separate layer, using the FWS Wetlands Status and Trends procedures and upland classification system.

Field reconnaissance and Field Data Sheets within Victoria SE, Seattle NE and Seattle SE were completed prior to the aerial photographic delineation of wetlands. Field sites were selected to clarify varying signatures found on the photography, both the 1980 and 1999. These photographic signatures were then identified in the field using vegetation and soil types, as well as additional input from field personnel.

Collateral data included USGS topographic maps, NWI maps, SCS preliminary soil surveys, USGS water resources data, vegetation, climate, and ecoregional information.

The user of the map is cautioned that, due to the limitation of mapping primarily through aerial photointerpretation, a small percentage of wetlands may be unidentified. Since the photography was taken during a particular time and season, there may be discrepancies

between the maps and current field conditions. Changes in landscape, which occurred after the photography was taken, would result in such discrepancies. One example is scrub-shrub photosignatures, which have since grown into forested areas.

Aerial photointerpretation were completed by Greenhorne & O'Mara, Inc., in Pinellas Park, Florida, with quality control conducted by the United States Fish and Wildlife Service.

Literature Cited

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