

NATIONAL WETLAND INVENTORY

NOTES TO USERS

CASCADE MOUNTAIN RANGE

CENTRAL WASHINGTON

1:100,000 Scale Maps Covered

Yakima SW, NW  
Wenatchee SW, SE, NE  
Concrete SE, NE

**DRAFT**

## MAP PREPARATION

The U. S. Fish and Wildlife Service, Office of Habitat Resources, is conducting an inventory of the wetlands of the United States. The National Wetlands Inventory (NWI) is establishing a wetland data base in both map and computer forms for the entire country. The NWI information will serve to identify the current status of U.S. wetlands and can be used as a reference point from which future changes in wetlands can be evaluated.

The purpose of Notes to Users is to provide general information regarding the production of NWI maps and wetlands found within a relatively uniform geographic area. Notes to Users are not intended to include complete descriptions of all wetlands found in the area or provide complete plant species information.

Specific wetland map delineations and classification are the product of photo-interpretation of high altitude aerial photography, supported by preliminary field reconnaissance and aided by the use of collateral information (County Soil Surveys, USGS quadrangles, etc.). The system for wetlands classification is in accordance with "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin, et. al., 1979).

Most photography used for interpretation was National High Altitude Color infrared at a scale of 1:58,000. Photography was taken on six days during August, 1983. Some of the higher mountain regions were covered by black and white photography at a scale of 1:80,000. This was in a small area of the Wenatchee SE, NE and Concrete SE, NE maps. All black and white photographs were taken on 20 August, 1984

## GEOGRAPHY

The mapping area is located in and around the North Cascade Mountain Range in north central Washington State (See attached maps). Falling within this area are portions of the Snoqualmie, Wenatchee, Okanogan, Mt. Baker and Gifford Pinchot National Forests.

Bailey's Ecoregion Classification (1978) identifies two major domains within the study area, the largest portion falling in the Humid Temperate Domain, Marine Division. This ecoregion covers the largest aerial extent of the study area and includes the Cascades Range. The second is the Dry Domain, Steppe Division. This area is to the southeast of the Cascades. It is dryer here because the orographic rain which occurs in the Cascades depletes the precipitation by the time it reaches east.

The Marine Division is further divided into the Pacific Forest Province, Silver-fir-Douglas-fir Forest Section (M2415). The characteristic vegetation of this section is Douglas-fir, western redcedar, western hemlock, grand fir, silver fir and alder. The subalpine forest in the Cascades contains mountain hemlock and subalpine fir. Douglas-fir is most abundant but is not part of the climax vegetation.

The Steppe Division is further divided into the Intermountain Sagebrush Province with two sections in the study area. The Ponderosa Shrub Forest Section (3135); characterized by ponderosa pine, low deciduous shrubs (snowberry and rose) and perennial grasses (wheatgrass and pinegrass), is found in the southern extreme of the study area in and around Conboy Lake. The Sagebrush-Wheatgrass Section (3131) occurs in the western edge of Wenatchee NE and the Kittitas Valley area of Wenatchee SE. This area is characterized by low mountains and sparsely vegetated tablelands and is the edge of the area known as the Great Basin. (The Columbia River Valley areas were mapped during a previous endeavor. See: "Mid Columbia River Basin and Yakima River Valley, Notes to Users".)

The majority of the study area is in the Cascade Mountain Range characterized by steep, high and rugged mountains. Many are in the range of 8,000 - 9,000 ft. above sea level and rise occasionally to volcanoes of much higher elevation. Mt. Ranier (14,410 ft.) and Mt. Adams (12,276 ft.) are just two such examples occurring in the Yakima maps.

Another area of differing topography is the Willamette-Puget Forest Province (2410). This occurs in the southwestern most part of the study area near and in the Cowlitz River valley and around Enum Claw. Elevations here range from nearly sea level to 1500 feet. The portion of this Province in our study area is a moderately dissected tableland with isolated hills and low mountains.

## CLIMATE

The Cascade and Pacific Highlands are among the wettest areas of North America with precipitation up to 150 inches or more with the most occurring in the winter months. The warm moist Pacific air also keeps temperatures fairly moderate (35 - 50° F average excluding the alpine areas). In summer there may be a slight precipitation deficit, but fog and clouds at higher elevations ("drip zone") compensates. Snow and glaciers are found year round at the higher elevations. Lower elevations, especially in the lee of the mountains have somewhat less annual precipitation.

The Steppe Division is a transitional belt between the desert areas and the more humid mountain areas. A very low precipitation/evaporation ratio exists with precipitation annually averaging 5-20 inches. The average annual temperatures are 40-55° F with hot dry summers with cool nights and cold dry winters.

## User Caution

The map document was prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography in accordance with "Classification of Wetlands and Deep Water Habitats of the United States" Cowardin, et al, 1977. The aerial photographs typically reflected conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of aerial photographs. Thus a detailed on-the-ground and historical analysis of a single site may result in revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on the map document.

Federal, State, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either design or products of this inventory, to define limits of proprietary jurisdiction of any Federal, State, or local government or to establish the geographical scope of regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate Federal, State, or local agencies concerning specific agency regulatory programs and proprietary jurisdictions that may affect such activities.

Additional information regarding this map or other National Wetland Inventory activities may be obtained by contacting:

Dennis Peters, Regional Wetland Coordinator,  
U.S. Fish and Wildlife Service, Region 1, Lloyd 500  
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Aerial photo interpreter was completed by Martel Laboratories, Inc., St. Petersburg, Florida. Maps were prepared by NWI National Team in St. Petersburg, Florida.

## Wetland Communities

Rivers and streams with their associated vegetated wetlands are the most frequently encountered wetlands. Virtually all perennial rivers were of the upper perennial subsystem (R3OWH). Examples of the medium to large named rivers include the Nisqually, Cowlitz, Mowich, Puyallup, White, Yakima, Wenatchee, Entiat, Methow, Twisp, Pasayten, American and Carbon Rivers. These rivers are fast flowing with a dissolved oxygen content which is very high and for the most part have a steep gradient (with minor areas of lower gradient). The substrate is generally rubble, cobble-gravel, sand or in some places bedrock. The bars in these upper perennial rivers vary greatly from vegetated to unvegetated.

The unvegetated bars are generally sand or cobble-gravel in nature and occur within the channel or along the edges of the river or stream. These are classified as R3USA (temporarily flooded) or R3USC (seasonally flooded).

The vegetated river bars range from scrub-shrub to forested and occur either within the river channel or along the banks. Seasonally flooded scrub-shrub bars were comprised of sparse to dense willow (Salix spp.) on sand or mixtures of cobble-gravel and sand. Some bars had varying amounts of red alder (Alnus rubra) also. These wetlands were classified as PSSC. The temporarily flooded areas of these communities are the more built up bars in the channel or areas leading up the banks of the channel. These temporarily flooded scrub-shrub wetlands with a dense cover of willow, alder or a mixture are classified as PSSA. In general the more vegetation on the bar the less often and the shorter the duration of the flooding.

Forested river bars were encountered infrequently. They were generally covered with red alder or black cottonwood (Populus trichocarpa) and were generally temporarily flooded (PFOA). The seasonally flooded examples were mainly forested with red alder and classified as PFOC.

River floodplain scrub-shrub wetland communities were mixtures of shrub species. These communities had varying densities of shrubs with sedges and other grass-like plants and forbs interspersed in the less dense stands. Seasonally flooded wetlands (PSSC) were comprised of various mixtures of willow, red alder, redosier dogwood (Cornus stolonifera), vine maple (Acer circinatum), rose (Rosa spp.) and spirea (Spirea douglasii). The grass-like plants in these communities included Nebraska sedge (Carex nebraskensis), horse-tail or scouring rush (Equisteum spp.), slough sedge (Carex obnupta), and rushes (Juncus spp.). Temporarily flooded shrub communities (PSSA) were very similar as to species present but composition changes are noticeable. As these areas get drier the willow tends to drop out and there is a noticeable increase of vine maple, rose and spirea. Snowberry (Symphoricarpos sp.) also becomes a component together with viburnum (Viburnum sp.). Semipermanent scrub-shrub wetlands (PSSF) within river floodplains were associated with beaver influence and will be discussed later.

The forested component of floodplain wetland communities was mainly temporarily flooded (PFOA). These areas were on small benches or terraces slightly raised above the channel but before the banks rose to upland (non-wetlands). Species present here include red alder (both tree and shrub size), black cottonwood, quaking aspen (Populus tremula), Western redcedar (Thuja plicata), firs (Abies spp.), ponderosa pine (Pinus ponderosa) and Engelmann spruce (Picea engelmannii). Shrubs included red alder, vine maple, rose, spirea, redosier dogwood, western crabapple (Pyrus fusca), snowberry, blackberry (Rubus spp.) and viburnum. Various grasses, sedges, rushes and ferns occur scattered on the forest floor. As the forested floodplain gets wetter (PFOC) the herbaceous layer changes to a more sedge/rush composition and becomes more scattered. In the shrub layer red alder and spirea increase while most other species decrease in abundance. The tree composition also changes to less of a mixture and more toward monotypic stands of red alder, black cottonwood or western redcedar. Monotypic stands of red alder, black cottonwood or western redcedar may also be temporarily flooded or upland however, so location in respect to the river channel, slope, or elevation must be considered for these communities.

Emergent wetlands within floodplains were seasonally flooded to temporarily flooded (PEMC, PEMA). Seasonally flooded emergent communities were composed of soft rush (Juncus effusus), Nebraska sedge, slough sedge, horse-tails or scouring rushes, and reed canary grass (Phalaris arundinacea). These wetlands are generally within broad valleys and are often used as pasture; if dry enough at the end of the season they are mowed for hay. Temporarily flooded wetlands are composed of more grasses such as hairgrass (Deschampsia sp.) and bentgrass (Agrostis sp.) together with false hellebore (Veratrum sp.) and other herbs such as aster (Aster spp.). Many of these areas are also grazed or mowed if accessible.

The lower perennial subsystem (R2OWH) was restricted to natural creeks in the broader agricultural valleys such as the Kittatas. Here gradients are low enough to be considered lower perennial.

When riverine systems and their adjacent vegetated wetlands were too narrow to be mapped separately at this scale, the vegetation took precedence. Communities will be the same as those already described but the water regime was determined based on the class of stream on the U.S.G.S. topographic maps. Vegetated linears occurring along perennial streams were given the seasonally flooded water regime (C) while those along intermittent streams were given the temporarily flooded water regime (A). This was done because it was thought that perennial streams would carry enough water to overflow their banks during spring run off for longer periods than intermittent streams.

Riverine aquatic bed communities were rarely encountered in the field but may occur with somewhat more frequency than is determinable from aerial photography. These communities (R3ABH, R2ABH) should be composed of algae, aquatic mosses and or members of the group of plants known as cresses.

Intermittent riverine subsystems were based on the U.S.G.S. quadrangle information. Seasonal intermittents were well defined channels or streambeds usually bright white and easily followed on the photography or else in well vegetated valleys. Temporary streambeds were more a gray color and less distinct.

U.S.G.S. quadrangle information was used in virtually all cases to make subsystem determination in the Riverine system. Perennials were labeled as either Riverine upper perennial or lower perennial (R3 and R2 respectively) and intermittents as such (R4). An exception to this was in the case of man-made irrigation canals and flumes. These were placed in the intermittent subsystem whether labeled as perennial or intermittent. If perennial by U.S.G.S. then they were labeled R4SBKfx when excavated and R4SPKfr when obviously concrete lined or elevated as a flume. If they were identified as intermittent by U.S.G.S. they were classified as R4SBKCx or R4SBKCr respectively. These canals are closed off at various times in the growing season depending upon water needs and therefore do not contain water all year.

Lacustrine communities occurred as both natural and impounded water bodies. These ranged in size from very large to those which were only just large enough to meet the 20 acre size criteria. Some examples of the larger named natural lakes include Wenatchee, Fish, Chester Morse, Twin Lakes, Waptus, Packwood and Walput Lake. These were classified as L10WH. Examples of impounded reservoirs are Rimrock Lake, Bumping Lake, Keechelus Lake, Kachess Lake, Cle Elum Lake and Lake Chelan. These were classified as L10WHh. Substrates will undoubtedly range from silts and muds through bedrock.

Both the natural and impounded lakes had unconsolidated shore (beach bars or draw down) areas. These consisted of sands, muds, silts and cobble-gravel areas which are exposed during annual low water periods. On natural lakes these areas are classified as L2USC and along dammed rivers or reservoirs the impounded modifier is added (L2USCh).

Lake marshes consisted of emergent grasses, sedges, rushes, other grass-like plants and forbs. They occurred around the edges of lakes in the shallow areas which are flooded for varying lengths of time during the growing season. Very few semipermanently flooded areas (PEMF) were encountered. When they do occur they are dominated by cattail (Typha latifolia) and/or bulrush (Scirpus spp.) The next drier zone is the seasonally flooded shallow marsh (PEMC). The species here include cattails, bulrushes, rushes, sedges and reed canary grass. The temporarily flooded zone (PEMA) between the shallow marsh and the upland is comprised of rushes, sedges, and unidentified grasses.

Shrub swamps and scrub-shrub wetlands also occur along and around lakes. These communities range from very dense growth of shrubs to more open areas of shrubs with an herbaceous layer. The wettest of these areas are the semipermanently flooded communities (PSSF). They are usually monotypic or are predominantly willow or red alder. In these semipermanent shrub wetlands herbaceous vegetation is sparse and is comprised of water sedge (Carex aquatilis), slough sedge, small amounts of horse-tail or scouring rush and small amounts of cattail. Seasonally flooded scrub-shrub wetlands (PSSC), the most frequent shrub wetlands, include willows, red alder, redosier dogwood, rose, spirea and usually some snowberry. Herbaceous species are more prevalent in this community than in the semipermanent areas and include rushes, sphagnum, scirpus, reed canary grass and unidentified ferns, sedges, and forbs. The highest diversity of species occurs in the temporarily flooded zone (PSSA). Species here include red alder, redosier dogwood, vine maple, rose, spirea, snowberry, viburnum and crabapple with a diverse herbaceous layer of grasses, sedges, forbs and ferns.

Forested wetlands around lakes were usually of the temporarily flooded type. These wetlands had a well developed overstory of deciduous trees including most often red alder or black cottonwood. Other species which occurred were maples and ashes. Understory shrub layer species included vine maple, rose, alder, spirea, crabapple, quaking aspen, snowberry, salmonberry and others.

Ponds or palustrine open water areas, were very similar to lakes with the exception of size. Ponds, both permanent and semipermanent in nature (POWH and POWF respectively) range in size from very small (less than one acre) to just smaller than a lake (just less than 20 acres). In lava bed areas, many such small ponds occur with great density. Substrate is probably limited to sand, silt or mud with some undoubtedly existing on bedrock. The vegetated palustrine wetlands associated with ponds are very similar to those around lakes.

Some exceptions to this do exist. One example of an exception is the aquatic bed community (PABH). No aquatic bed communities were seen in lacustrine systems although they undoubtedly exist within the study area. (Submergent aquatic beds do not show up reliably on the aerial photography used.) Floating or floating-leaved rooted vascular communities were rarely large enough to map as aquatic bed. Aquatic beds usually occurred in mixture with emergent and shrub wetlands. When delineated, they consist mainly of water lily (Nymphaea spp.), duckweed (Lemna sp.), pondweed (Potamogeton spp.) and water milfoil (Myriophyllum spp.) in monotypic stands or in mixtures.

Beaver modified wetlands can be discussed as either part of the pond communities or with the riverine associate communities. In most cases these wetlands were the main occurrence of semipermanently flooded wetlands. The impounding of a stream channel by beavers can lead to any combination of wetlands from open water through permanently flooded emergents, trees or shrubs. Generally however, the vegetated wetlands within the influence of beaver impoundments are of the semipermanent or seasonally flooded water regimes. The species composition of these wetlands is the same as discussed under the lakes and their associated wetlands. All wetlands which exist because of visible indications of beaver activity are given the special modifier (b) e.g., PFOCb.

Other wetlands of the Palustrine system were scattered throughout upland areas as pockets or depressional areas. These wetlands included examples of forested, scrub-shrub, emergent, unconsolidated shore and mixed class wetlands.

Forested depressions were mostly seasonally flooded (PFOC). When dominated by evergreen species these areas had a more open understory. The species here were lodgepole pine (Pinus contorta) Western redcedar or Douglas-fir. Under a forest cover of this type there was a more lush growth of ferns and mosses together with sedges.

Deciduous forested wetlands were highly variable communities. Temporarily flooded stands of quaking aspen with very thick understory growth of snowberry were found. Aspen could also be found on upland, however. Red alder stands could be seasonally flooded, temporarily flooded or upland communities. The other forested wetlands occurring in depressions throughout the study area resembled those already discussed in association with rivers and lakes.

Scrub-shrub depressional communities were composed primarily of red alder. As fringe communities of high mountain meadows these seasonally flooded shrub communities were composed of red alder, wild blueberry (Vaccinium spp.) and bog laurel (Kalmia sp.). These shrubs had various mixtures, with alder being near the outside better drained edge and the short blueberry and bog laurel increasing in frequency toward the edge of the emergent meadow. These meadows along with the shrub ring may exhibit characteristics of saturated conditions.

Alpine "heath" or "tundra" areas do occur within the western half of the study area. The shrub community here is composed of very short or stunted white azaleas (Rhododendron spp.) and various of the huckleberries or blueberries (Vaccinium spp.). These alpine areas are labeled as seasonally flooded but exhibit some saturated characteristics.

Wet meadow emergent communities occurred as high mountain meadows, pasture or grazed areas and mowed meadows. The high mountain meadows were very similar in appearance and species composition. They had a rather distinct edge where shrubs or trees started the transition to drier conditions and uplands. Many of these meadows could be classified as borderline saturated wetlands. The water table fluctuates from above the soil surface to usually just below it. Species here include slough sedge, water sedge, Nebraska sedge, ladies tresses (Spiranthes spp.), grasses and grass-like plants and sphagnum. These communities were classified as PEMC.

One unique meadow community encountered was the Camas meadow. They can range from seasonally to temporarily flooded. These communities are located in rather isolated areas of the mountains. Species here include camas (Camassia quamash), dock (Rumex sp.), wild carrot (Daucus carota), yarrow (Achillea sp.), Timothy (Phleum sp.), fescues (Festuca sp.), asters, lupine (Lupinus sp.) and many other herbaceous species. ←

Emergent wetlands which are grazed or mowed occur in the valley areas. These wetlands are often influenced by irrigation of surrounding cropland. These meadows are generally seasonally to temporarily flooded depending on size, soils, and man's influence. Seasonally flooded examples (PEMC) contain reed canarygrass, phragmites (Phragmites australis), rushes and many species of grasses and grass-like plants. The temporary meadows (PEMA) generally have species of short grasses and sedges.

Springs occur throughout the study area. They take the form of seepy slopes, "headwaters" of and along rivers and within meadow areas. The seepy slope type is vegetated by many species of sedges and some wetland grasses. The "headwaters" type is generally within scrub-shrub communities. Species here include willow, alder, rose, and near the drier edges and along the drainages, hawthorn (Crataegus sp.). The meadow types, such as at Longmire on Mt. Rainier, are vegetated by grasses, sedges and rushes.

In summary the most common vegetated wetlands were seasonally flooded types. These occurred as isolated pockets, adjacent to open water areas, in agricultural areas and along river floodplains. Temporarily flooded wetlands were next in frequency occurring in the same kinds of areas as the seasonally flooded. Semipermanently flooded wetlands occurred with the least frequency and were most often associated with lakes, ponds, or beaver influenced stream channels.

Table 1: Wetlands Communities

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
R3OW	Riverine, upper perennial, open water	River, stream or creek	Unvegetated; sand, cobble-gravel or rubble
R2OW	Riverine, lower perennial, open water	River, stream or creek	Unvegetated sand, cobble-gravel or rubble
R4SB	Riverine, intermittent, stream bed	Stream or creek	Unvegetated; sand, cobble-gravel or rubble
R3US	Riverine, upper perennial, unconsolidated shore	River bars, gravel bars	Unvegetated; sand, cobble-gravel or rubble
L1OW	Lacustrine, limnetic, open water	Lakes (can be dammed river channels)	Unvegetated, sand, mud or cobble-gravel
L2US	Lacustrine, littoral, unconsolidated shore	Lake shores, impoundment draw down zones	Unvegetated; sand, mud, or cobble-gravel
PFO	Palustrine, forested	Wet forest, depression forest, floodplain forests, river bars	Red alder ( <u>Alnus rubra</u> ) Black cottonwood ( <u>Populus trichocarpa</u> )

Table 1: Wetlands Communities

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
PFO (cont)			Quaking aspen ( <u>Populus tremula</u> ) Lodgepole pine ( <u>Pinus contorta</u> ) Western redcedar ( <u>Thuja plicata</u> ) Fir ( <u>Abies</u> spp.) Engelmann spruce ( <u>Picea engelmannii</u> ) Ponderosa pine ( <u>Pinus ponderosa</u> ) Douglas-fir ( <u>Pseudotsuga</u> <u>menziesii</u> )
PSS	Palustrine, scrub-shrub unconsolidated shore	Shrub swamp, shrub thicket, riparian, flood- plain thickets, river bars, alpine heath, alpine tundra	Red alder ( <u>Alnus</u> <u>rubra</u> ) Willow ( <u>Salix</u> spp.) Vine maple ( <u>Acer circinatum</u> ) Rose ( <u>Rosa</u> spp.) Spirea ( <u>Spirea</u> <u>douglasii</u> ) Redosier dogwood ( <u>Cornus</u> <u>stolonifera</u> ) Western crabapple ( <u>Pyrus fusca</u> ) Bog laurel ( <u>Kalmia</u> sp.)

Table 1: Wetlands Communities

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
PSS (cont)			Wild Blueberry ( <u>Vaccinium</u> spp.) Snowberry ( <u>Symphoricarpos</u> sp.) Viburnum ( <u>Viburnum</u> sp.) Azalea ( <u>Rhododendron</u> spp.) Hawthorne ( <u>Crataegus</u> sp.)
PEM	Palustrine, emergent	Alpine meadows, wet meadows, wet pasture, depressions, lake edges, pond edges, river banks, marsh, shallow marsh, deep marsh	Bentgrass ( <u>Agrostis</u> sp.) Sphagnum ( <u>Sphagnum</u> sp.) Juncus ( <u>Juncus</u> <u>effusus</u> ) Nebraska sedge ( <u>Carex</u> <u>nebraskensis</u> ) Slough sedge ( <u>Carex</u> <u>obnupta</u> ) Reed canary grass ( <u>Phalaris</u> <u>Arundinacea</u> ) Horse-tail or Scouring rush ( <u>Equisetum</u> spp.) Cattails ( <u>Typha</u> <u>latifolia</u> ) Aster ( <u>Aster</u> spp.) Hairgrass ( <u>Deschampsia</u> sp.)

Table 1: Wetlands Communities

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
<p>PEM (cont)</p>			<p>Lupine (<u>Lupinus</u> sp.) Water sedge (<u>Carex aquatilis</u>) Ladies tresses (<u>Spiranthes</u> <u>romanzoffiana</u>) Timothy (<u>Phleum</u> sp.) False Hellebore (<u>Veratrum</u> sp.) Dock (<u>Rumex</u> sp.) Wild carrot (<u>Daucus carota</u>) Yarrow (<u>Achillea</u> sp.) Camas (<u>Camassia quamash</u>) Scirpus (<u>Scirpus</u> sp.) Phragmites (<u>Phragmites</u> <u>australis</u>) Fescue (<u>Festuca</u> sp.) Unidentified forbs Unidentified grasses</p>

Table 1: Wetlands Communities

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
POW	Palustrine, open water	Pond	Unvegetated, sand, mud, cobble-gravel
PAB	Palustrine, aquatic bed	Pond, shallow pond, deep marsh	Water lily ( <u>Nymphaea odorata</u> ) Water-cress ( <u>Nasturtium</u> ( <u>officinale</u> ) Duckweed ( <u>Lemna sp.</u> ) Pond weed ( <u>Potamogeton sp.</u> ) Water milfoil ( <u>Myriophyllum sp.</u> )



CENTRAL WASHINGTON TASK

ORDER BOUNDARY

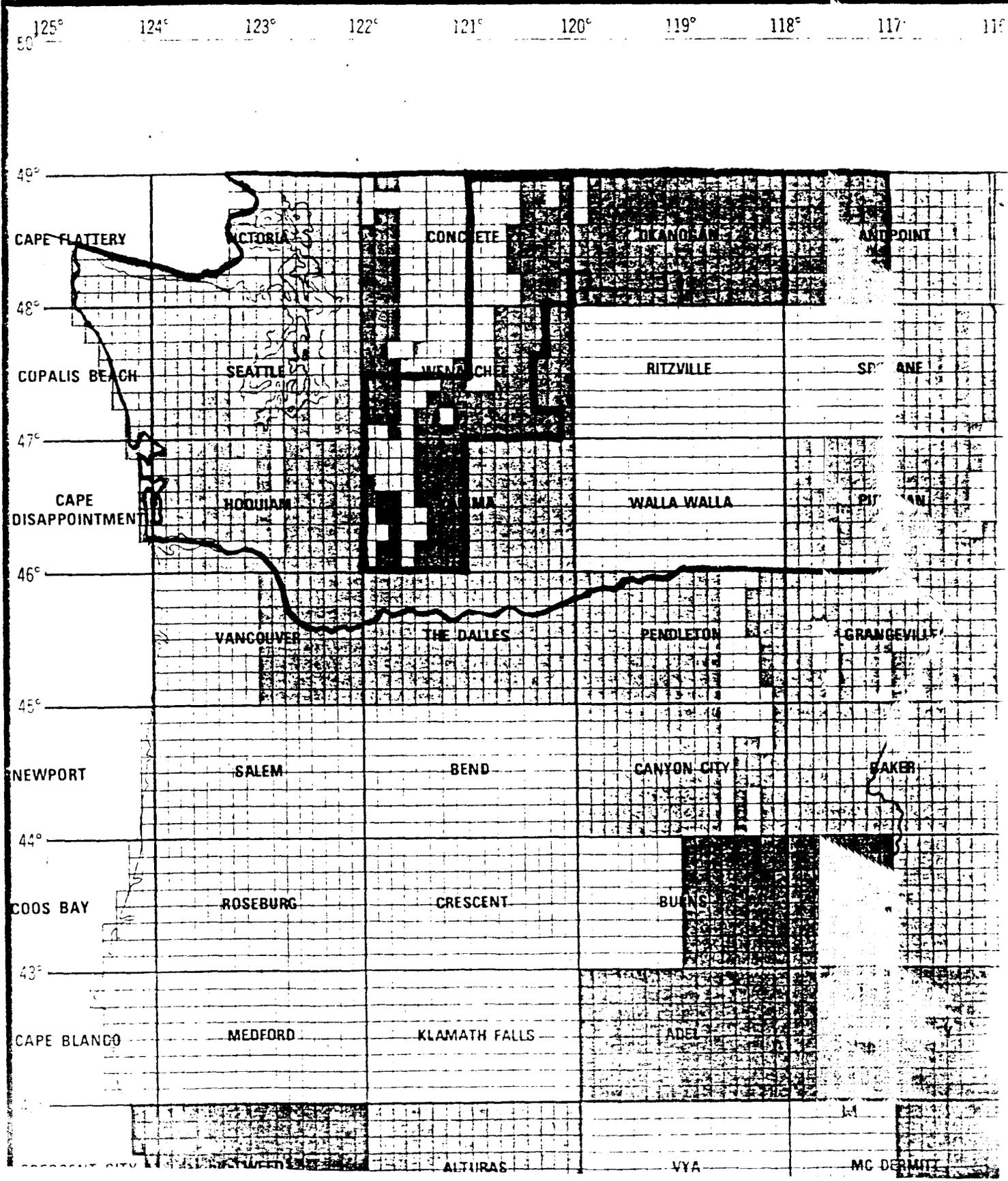
TASK ORDER BOUNDARY ———

STATE BORDER ———

CASCADE MOUNTAIN RANGE

USER NOTE BOUNDARY ———

DEPARTMENT OF THE INTERIOR  
U.S. GEOLOGICAL SURVEY



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NWI#37

\* Ben,

Please supply the missing information needed here.

THANKS.

Tom