



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

LLOYD 500 BUILDING, SUITE 1692

500 N.E. MULTNOMAH STREET

PORTLAND, OREGON 97232



(503) 231-6154 FTS:429-6154

## NATIONAL WETLAND INVENTORY

### NOTES TO USERS

ARCATA TO POINT DELGADA, CALIFORNIA

1:100,000 SCALE MAPS COVERED

Eureka (Eureka NE)

Cape Mendocino (Eureka SE)

1. Map Preparation

Wetland classification for the National Wetlands Inventory (NWI) wetland map overlays to the Eureka and Cape Mendocino 1:100,000 scale maps is in accordance with "Classification of Wetlands and Deep-Water Habitats of the United States (An Operational Draft)", Cowardin, et al, 1977.<sup>1</sup> Delineations were produced through interpretation of NASA color infrared aerial photography at a scale of 1:120,000 taken during September 1973. The photographs were viewed stereoscopically at 6X magnification. Delineations were enlarged using a zoom-transferoscope to 1:62,500 overlays to fit U.S.G.S. 15' topographic map series. The 1:100,000 scale overlay was prepared from the 15' series overlays. Since a U.S.G.S. 1:100,000 scale base map is not yet available for Eureka, a wetland map overlay was prepared rather than delay distribution of the products. The 1:100,000 scale base map was prepared by enlarging and then quartering the 1:250,000 scale map series.

Limited field checks were conducted during the fall of 1978.

The Project Officer for production of the wetland map was Dennis Peters, Regional Wetland Coordinator, U.S. Fish and Wildlife Service, Region 1, Lloyd 500 Building, 500 N.E. Multnomah Street, Portland, Oregon 97232, telephone (503) 231-6154. Aerial photo interpretation was completed by CH2M-Hill, Redding, California. Maps were prepared by the NWI National Team in St. Petersburg, Florida.

2. 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. 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

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<sup>1</sup>/ Cowardin, Lewis M., Virginia Carter, Francis C. Golet, and Edward T. LaRoe. 1977. "Classification of Wetlands and Deep-Water Habitats of the United States (An Operational Draft)", U.S. Fish and Wildlife Service, October 1977.

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.

Any noted discrepancies, land use changes, or additional information regarding this map or other NWI activities should be provided to the Regional Wetland Coordinator, U.S. Fish and Wildlife Service.

### 3. Geography

The Eureka 1:100,000 scale map is located along the northern California coast. Bailey's Ecoregion classification identifies the area as within the Marine Division, Pacific Forest Province, Redwood Forest (M2412). The Physical Subdivision and Land Surface Forum is Pacific Mountain, coast ranges; low mountains.

Soils for portions of the base map have been mapped by University of California-Davis (McLaughlin and Harradine). There are no published Soil Conservation Service soil data.

### 4. Wetland Communities

Deep-water habitats are areas that are permanently flooded (except during periods of extreme drought) and are characterized by open water on the aerial photography. These habitats are classified as open water, or where collateral data or field checks are available, as unconsolidated bottom. Deep-water habitats are found in all systems except the Palustrine system.

Unvegetated wetlands may include beach/bars, flats, and streambeds. Estuarine flats are seasonally covered with algal mats and/or lined with various emergent vegetation. Ulva spp. and Enteromorpha spp. are common algae found on the flats. Scattered patches of eelgrass (Zostera spp.) and widgeon grass (Ruppia maritima) may be present on these flats. Estuarine streambeds are tidal sloughs that are dewatered during low tide. These are often lined with sedge (Carex spp.) chordgrass (Spartina foliosa), arrow grass (Triglochin maritima), pickleweed (Salicornia virginica), bulrush (Scirpus spp) and/or rush (Juncus spp.).

Estuarine intertidal aquatic beds are comprised of eelgrass (Zostera spp.). Eelgrass is tolerant to long-term submergence and is generally associated with an irregularly exposed water regime modifier, i.e., substrate exposed less often than daily.

Estuarine intertidal emergent wetlands are extremely important wetland types identified on the Eureka map. These habitats are often referred to as salt marshes. Intertidal emergent wetlands are characterized by

a regularly flooded water regime modifier, i.e., flooded daily or an irregularly flooded water regime modifier, i.e., flooded less often than daily. The dominant plant species include chordgrass, pickleweed, and salt grass (Distichlis spicata). Associated species include gum plant (Grindelia stricta), arrow grass, jaumea (Jaumea carnosa) and rush.

The riverine system includes tidal, lower perennial and upper perennial open water wetlands. The riverbeds are usually unvegetated although they are generally lined with willow (Salix spp.), red alder (alnus rubra), black cottonwood (Populus trichocarpa) and various shrubs and berries. Where the riparian canopy obscured the streambed on the aerial photography, the units were mapped a Palustrine forested or scrub/shrub.

Palustrine wetlands are evident throughout the Eureka maps in the sand dunes, adjacent to rivers, and as diked former tidelands in the Estuarine and Riverine (tidal) systems. These wetlands consist of forested, scrub/shrub and emergent areas.

Palustrine forested and scrub/shrub wetlands are dominated by willow, alder, black cottonwood, and assorted berries and herbs. These areas are found as "riparian" strips or isolated pockets in depressions. The classification of forested or scrub/shrub is determined by height of the woody vegetation - forested greater than 6 m and scrub/shrub less than 6 m.

Palustrine emergent wetlands are dominated by rush (Juncus spp.), bulrush (Scirpus), sedge (Carex spp.), saltgrass (Distichlis spicata) and spikerush (Elecharis spp.). Associated species include cattail (Typha latifolia), water naiad (Najas spp.) and pondweed (Potamogeton spp.).

Of special note throughout the Eureka base map area are Palustrine emergent wetlands that have been or are being used as pasture areas for dairy cattle. These wetlands generally have waterlogged soils, are without standing water in the summer but with shallow water in the winter, and are characterized by soft rush (Juncus effusus) and various grasses. Sedges and Pacific silverweed (Potentilla pacifica) may be present. These Palustrine emergent wetlands are former tidelands which have been diked and drained or river terraces that have been drained. These areas are often described as wet meadows.

##### 5. Sources of Additional Information

The purpose of this report is to provide general information regarding the production of the map and the wetlands found within the area of this map. It does not include descriptions of all wetlands found in the area nor complete species information. For additional information, the following publications are recommended:

- Bailey, Robert G. 1978. Description of the ecoregions of the United States. U.S. Forest Service, U.S.D.A., Ogden, Utah 77 pp.
- Biological Services Program. 1978. An ecological characterization of the Pacific Northwest coastal region. U.S. Fish and Wildlife Service Contract No. 14-16-0001-77-019, Portland, Oregon. var. pp.
- Macdonald, Keith B. 1977. Coastal salt marsh. pp 263-94. In M.G. Barbour and J. Major (eds.). Terrestrial vegetation of California. John Wiley & Sons, Inc.
- Mason, Herbert L. 1969. A flora of the marshes of California. Univ. of Calif. Press, Berkeley. 879 pp.
- McLaughlin, James and Frank Harradine. 1965. Soils of western Humboldt County, California. Univ. of California, Davis. 144 pp.
- Monroe, Gary W. 1973. The natural resources of Humboldt Bay. California Department of Fish and Game, Sacramento, CA. 160 pp w/app.
- Monroe, Gary W. and Forest Reynolds. 1974. The natural resources of the Eel River delta. California Department of Fish and Game, Sacramento, CA. 108 pp.
- Shaw, Samuel P. and Gordon Fredine. 1956. Wetlands of the United States. U.S. Fish and Wildlife Service, Circular 39, Washington, D.C. 67 pp.
- U.S. Army Corps of Engineers. 1978. Preliminary guide to wetlands of the west coast. Technical Report Y-78-4, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Miss. 66 pp.
- U.S. Department of Interior. 1979. Concept plan for waterfowl wintering habitat preservation California coast. U.S. Fish and Wildlife Service, Portland, OR 122 pp w/app.

SELECTED CLASSIFICATION/COMMUNITY TYPE CORRELATIONS

Map Designation	(Cowardin, et al Oct 1977)	Type Circular 39	Common Name	Representative Plant Species
E1UB	Estuarine, subtidal unconsolidated bottom	19	Estuary, bay	Unvegetated
E2FL	Estuarine, intertidal, flat (irregularly exposed) <sup>1/</sup>  (regularly flooded)	15  15	Mud flats  Mud flats	Algae ( <u>Ulva</u> , sp. and Enteromorpha sp.)  Algae
E2AB	Estuarine, intertidal, aquatic bed (irregularly exposed)	19	Eelgrass beds	Eelgrass ( <u>Zostera</u> sp.)
E2SB	Estuarine, intertidal streambed (irregularly exposed)	--	Tidal slough	Unvegetated (lined with sedges ( <u>Carex</u> sp.) and chordgrass ( <u>Spartina foliosa</u> )
E2EM	Estuarine, intertidal, emergent (regularly flooded)	16 or 18	Tidal marsh (low salt marsh)	Chordgrass Pickleweed ( <u>Salicornia virginica</u> ) Salt grass ( <u>Distichlis spicata</u> ) Seaside arrowgrass ( <u>Triglochin maritima</u> )
E2EM	Estuarine, intertidal, emergent (irregularly flooded)	17	Tidal marsh (high salt marsh)	Pickleweed Salt grass Jaumea ( <u>Jaumea carnososa</u> )
RIUB	Riverine, tidal, unconsolidated bottom (permanently flooded)	--	Tidal river	Lined w/willow ( <u>Salix</u> sp.) and Red Alder ( <u>Alnus rubra</u> ) Black cottonwood ( <u>Populus tri- chocarpa</u> )

<sup>1/</sup> Water regime modifier in parenthesis

Map Designation	(Cowardin, et al Oct 1977)	Type Circular 39	Common Name	Representative Plant Species
PEM	Palustrine, emergent (seasonally flooded)	1,2,3,4	Marsh, swamp	Rushes ( <u>Juncus</u> sp.) Sedge ( <u>Carex</u> sp.) Pacific silverweed ( <u>Potentilla pacifica</u> )
	Palustrine, emergent (seasonally flooded)-diked	1,2	Diked marsh	Soft rush ( <u>Juncus effusus</u> ) various grass & forbes
PSS	Palustrine, scrub/shrub (seasonally flooded)	6	Wet hummock swamp	Coast willow ( <u>Salix hookeriana</u> ) Various berries
			Riparian strip	Coast willow Red alder Various berries
PFO	Palustrine, forested (seasonally or temporarily flooded)	7	Riparian strip	Coast willow Red alder Black cottonwood Various berries

