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NATIONAL WETLANDS INVENTORY

NOTES TO USERS

Malheur-Harney, Oregon

1:100,000 Scale Maps Covered

Burns NE	(Stinkingwater Mountains)
Burns NW	(Burns)
Burns SE	(Malheur Lake)
Burns SW	(Harney Lake)
Adel NE	(Steens Mountains)
Adel NW	(Bluejoint Lake)
Boise NW	(Vale)
Boise SW	(Mahogany Mountains)
Jordan Valley NW	(Jordan Valley)

NATIONAL WETLANDS INVENTORY

1:100,000 MAP NARRATIVE

Burns NE, NW, SE, SW
Adel NE, NW
Boise NW, SW
Jordan Valley NW

INTRODUCTION

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.

PURPOSE

The purpose of Notes to Users is to provide general information regarding the production of NWI maps and wetlands found within a relatively similar geographic area. Notes to Users are not intended to include complete description of all wetlands found in the area nor provide complete plant species information.

AREA COVERED

The mapping area in southeastern Oregon is defined by the outermost limit of the nine aforementioned 1:100,000 scale maps (see attached index maps A and B). Central to the region is the Malheur-Harney drainage basin which collects water from three principal sources: the Silvies and the Silver Creek River from the Blue Mountains to the north, and the Donner Und Blitzen from the Steens Mountains to the south. The Silver Creek river drains directly into Harney Lake and the Silvies and the Donner und Blitzen drain directly into Malheur Lake. In extremely wet years, the Malheur Lake will fill to capacity and spill over into Harney Lake.

Other major bodies of water in the work area include a small portion of the Snake River in the northeastern part of the region (Boise NW), the Lake Owyhee Reservoir southwest of the Snake river (Boise NW and SW), and the northern half of the Warner Lakes chain, west of the Hart Mountain National Wildlife Refuge (Adel NW). Two additional major rivers, also located in the northeastern part of the region, are the Malheur and the Owyhee which drain into the Snake.

Local elevations range between 4,000 and 4,600 feet above sea level in the valleys to 9,670 feet on Steens Mountain. In addition to the Steens range (in Burns SE and Adel NE), other significant geographic features include the Alvord Desert (Adel NE) and the southern extensions of the Ochoco and Malheur National Forests in the Blue Mountains (Burns NW and NE).

BAILEY'S ECOREGIONS

The geographic zone falls within two major vegetative ecoregion provices (Bailey, 1978), though the Rocky Mountain forest Province accounts for less than 5% of the total area (extending into the northern Burns maps). Over 95% of the Malheur-Harney region is part of the Sagebrush-Wheatgrass Section of the Steepe-Intermountain Sagebrush Province. This province, which correlates to the physiographic section known as the Great Basin, is characterized by a semiarid climate and numerous "closed" basins, the lower parts of which often contain alkaline and saline salt accumulations.

In lower and mid-elevations, where aridisols are the dominant soils, the vegetation is marked by sagebrush though the natural climax vegetation is various grasses of palouse and mixed-prairie types. Other significant plants associated with sagebrush are shadescale, saltbush, rabbitbrush, hopsage, and horsebrush; all of which are somewhat salt tolerant and can exist within alkali depressions. Greasewood and saltgrass are the dominant plants in these depressions however, especially where salt concentrations are high. In contrast to the lower elevations, where forested vegetation is limited to infrequent occurances of various species of willow, aspen, and cottonwood, the landscape of higher elevations is dominated by Ponderosa pine and Douglas fir which occur in soils dominated by mollisols.

The majority of Burns NW and the northern half of Burns NE is covered by the Grand Fir-Douglas Fir Forest Section of the Rocky Mountain Forest Province. This province is noted for highly visible, well marked vegetational zones, the distribution of which is a function of altitude, lattitude, prevailing winds, and slope exposure. Applicable in this mapping area are the montane and woodland zones, the first of which is characterized by the dominance of Ponderosa pine and Douglas fir. Similar to the vegetation situation of the upper elevations of the Intermountain-Sagebrush Province, the Ponderosa pines generally prevail on the lower, drier, and more exposed slopes, and the Douglas firs on those higher, moister, and more sheltered. Below this belt, in the woodland or foothill zone, junipers, mountain mahogany, and various species of scrub oak occur amid dry, rocky slopes. The soils here range from aridisols in the foothill zone to mollisols and alfisols in the montane zone.

The climate for the region is semi-arid with warm, dry summers and relatively severe winters. The growing season is about 100 days in all but the higher elevations, and unseasonal frosts frequently occur. Mean minimum and maximum temperatures range from about 15°F in January to 85°F in July, and annual precipitation ranges from 5 to 20 inches per year, most of which results from snowfall and associated runoff. Almost no rain falls during the summer months except in the mountains.

Map Preparation

Specific wetland map delineations and classifications are the product of photo-interpretation of high altitude aerial photography, supported by preliminary field reconnaissance and aided by the use of collatoral information. The system for classification is in accordance with "Classifications of Wetland and Deep-Water Habitats of the United States", Cowardin, et. al., 1979.

After an initial review of the photography was made, the "field trip" was conducted from September 3 to 14, 1984 in an effort to relate various photographic characteristics to actual wetland and upland situations. At that time it was determined that a certain amount of the original 1:58,000 CIR photography (approximately 10 USGS quads worth) would be unusable because of flooding conditions present at the time of photography and at the time of the reconnaissance.

In its place, 1:120,000 and 1:130,000 scale CIR photography was used for the Malheur and Harney Lakes area (Burns SW and SE) and 1:80,000 black and white photogrpahy was used for the Warner Lakes area (Adel NW). The relatively small scale nature of the photography presented some problems when tying into the surounding larger scale photography which was delineated with greater detail. In addition, the quality of the small scale photography in terms of reduced stereoscopy and a more monochromatic emulsion was noticeably inferior to the high general quality of the 1:58,000 photography used for the vast majority of the area. Similarly, the 1:80,000 BW, which was also relatively small scaled, presented problems primarily because of limited descriptive tones due to lack of color enhancement.

Collatoral data included June, 1974 photographic print blow-ups, USGS topographic maps (7.5 and 15 minutes), and USDA soil surveys for soil, climate, and vegetation information. The additional photography was especially helpful as it was taken during a more typical wetland year and earlier in the growing season. This provided an important second perspective to an area marked by relatively drastic monthly changes in surface water due to seasonal irrigation practices and the haying of upland grasses and wet meadows for forage.

The following aerial photography was used for the photo-interpretation:

Map	Scale	Film	Date
Burns NE	1:58K	CIR	7/10/83
	1:58K	CIR	7/18/83
	1:58K	CIR	8/04/83
	1:58K	CIR	8/12/83
	1:58K	CIR	9/14/83
Burns NW	1:58K	CIR	8/21/82
	1:58K	CIR	8/22/82
	1:58k	CIR	8/26/82
Burns SE	1:58K	CIR	7/10/83
	1:58K	CIR	7/18/83
	1:58K	CIR	8/04/83
	1:130K	CIR	6/74
	1:124K	CIR	8/78
Burns SW	1:58K	CIR	8/21/82
	1:58K	CIR	8/22/82
	1:58K	CIR	8/26/82
	1:130K	CIR	6/74
Adel NE	1:58K	CIR	7/10/83
	1:58K	CIR	7/18/83
	1:58K	CIR	8/04/83
	1:58K	CIR	9/14/83
Adel NW	1:58K	CIR	7/10/83
	1:58K	CIR	8/04/83
	1:80K	BW	7/17/79
	1:80K	BW	8/01/79
Boise NW	1:58K	CIR	7/11/83
	1:58K	CIR	7/18/83
Boise SW	1:58K	CIR	7/11/83
	1:58K	CIR	7/18/83
Jordan Valley NW	1:58K	CIR	7/11/83
	1:58K	CIR	7/18/83

Note: "K" =1,000

MODIFIERS

Hydrologic characteristics are an important aspect of wetlands. The following water regime modifiers describe in general terms the duration and timing of surface inundation, as well as groundwater fluctuations.

Intermittently Flooded (J) -- Substrate usually exposed, but surface water present for variable periods without detectable seasonal periodicity. Weeks or months or even years may intervene between periods of inundation.

Temporarily Flooded (A) -- Surface water present for brief periods during growing season, but water table usually lies well below surface.

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

Seasonally Flooded (C) -- 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 highly variable, extending from saturated to a water table well below the ground surface.

Semi-permanently Flooded (F) -- Surface water persists throughout the growing season in most years. Land surface is normally saturated when water level drops below soil surface.

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

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

An artificially flooded (K) water regime modifier can be applied independently or in conjunction with other water regime modifiers where flooding is under the direct and purposeful control of man. Additionally, special modifiers may be added to further describe wetlands which have been created by impoundments (h) or by excavation (x).

WETLANDS AND DEEPWATER HABITATS

Wetlands and deepwater habitats within the subject area fall within the Palustrine, Lacustrine, and Riverine systems. Deepwater habitats are areas which are permanently flooded, except during periods of extreme drought, and are characterized by open water on the aerial photography. These habitats are present in all systems (see Table 1).

Palustrine emergents (PEM) are the most common Palustrine wetland type and are characterized by various species of wetland plants, such as Carex, Eleocharis, Juncus, Scirpus, Typha, Phalaris, and Rumex. Palustrine scrub/shrub (PSS) and Palustrine forested (PFO) wetlands are characterized by woody species which typically include willows (Salix spp.), alders (Alnus), and aspens and cottonwoods (Populus spp.). The classification of scrub/shrub or forested wetlands is determined by the height of woody vegetation; forested being greater than 6 meters (20 feet) and scrub/shrub being less than 6 meters. Palustrine unconsolidated shore areas (PUS) include ponds which usually dry up during summer, and alkali flats which appear as being unvegetated and bright white on the photography.

Numerous Palustrine "open water" areas are present within the study area with the majority of them being permanently flooded by impoundment or excavation for livestock and irrigation purposes (PUBHh, PUBHx). Varying amounts of Palustrine aquatic bed are often associated with these open water areas and most commonly consist of duckweeds (Lemna spp.) and pondweeds (Potamogeton spp.). The greater percentage of these aquatic bed wetlands are permanently flooded (PABH), but numerous semi-permanent conditions (PABF) also exist.

Natural or artificial basins greater than 20 acres are classified as Lacustrine and on these maps include the classes unconsolidated bottom (L1UB, L2UB), aquatic bed (L1AB, L2AB), and unconsoliated shore (L2US). Limnetic Lacustrine wetlands (L1) are deepwater habitats over 2 meters in depth and littoral Lacustrine wetlands (L2) are 2 meters or less in depth. The predominant flooding condition for the Lacustrine system in the study area is permanent (H) and irregularly exposed (G), but in the area of Malheur and Harney Lake, semi-permanent flooding (F) is the general situation and in the Alvord Desert area, the large unconsolidated shore is considered to be intermittently flooded (J). Lacustrine aquatic beds, regarless of flooding, also commonly consist of duckweed (Lemna spp.) and/or pondweed (Potamogeton spp.).

The Riverine system includes the classes unconsolidated bottom (UB), unconsolidated shore (US), and streambed (SB). For this region, UB and US are restricted to the Riverine upper perennial (R3UB, R3US) and lower perennial (R2UB, R2US) subsystems. While Riverine unconsolidated shore is not covered by perennial flow, it is associated with the reach of the river that contains permanent water and is included in that perennial subsystem. Streams which do not flow year round are classified as Riverine intermittent streambeds (R4SB) and do not have similar associated unconsolidated shore classifications. Such flats are either incorporated into the SB classification or are placed in the Palustrine system (PUS). Many intermittent and perennial rivers have vegetated banks which are also considered Palustrine instead of Riverine (PEM, PSS, PFO).

USER CAUTION

The map documents were 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 the 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.

Furthermore, changes in the landscape and/or land use could have occureed since the time of photography. Therefore, some discrepancies between the wetland map and current field conditions may exist. Any questions regarding wetland omissions, inclusions, or errors should be brought to the attention of the Regional Wetlands Coordinator, Region 1. The Project Officer for this wetland map is Dennis Peters, Regional Wetlands Coordinator, U.S. Fish and Wildlife Service, Region 1, Lloyd 500 Bldg., Suite 1692, 500 N.W. Multnomah St., Portland, Oregon 97232, telephone (503) 231-6154. Aerial photo interpretation was completed by Martel Laboratories, Inc., St. Petersburg, Florida. Maps were prepared by NWI National Team in St. Petersburg, Florida.

TABLE 1. SUMMARY OF NWI WETLAND TYPES

NWI CODE	NWI DESCRIPTION	COMMON NAME	VEGETATION/SUBSTRATE
PUB	Palustrine unconsolidated bottom	pond	mud, sand, gravel
PUS	Palustrine unconsolidated shore	pond shore, alkali bed	mud, sand, gravel
PAB	Palustrine aquatic bed	pond weeds	pondweed (*Potamogeton* spp.) duckweed (*Lemna*) watercress (*Nasturtium*)
PEM	Palustrine emergent	marsh, wet meadow, alkali bed	sedge (*Carex*, spp.) rush (*Juncus*, spp.) cattail (*Typha*) saltgrass (*Distichlis*)
PSS	Palustrine scrub/shrub	scrub/shrub wetlands	alder (*Alnus*) willow (*Salix*) dogwood (*Cornus*) greasewood (*Sarcobatus*)
PFO	Palustrine forested	forested wetlands	alder (*Alnus*) cottonwood (*Populus trichocarpa*) aspen (*Populus tremuloides*) willow (*Salix*)
L1UB	Lacustrine limnetic unconsolidated bottom	lake	mud, sand, gravel
L1AB	Lacustrine limnetic aquatic bed	pond weeds	pondweed (*Potamogeton* spp.) duckweed (*Lemna*)
L2UB	Lacustrine littoral unconsolidated bottom	shallow lake, lake flats	mud, sand, gravel

TABLE 1. SUMMARY OF NWI WETLAND TYPES (continued)

NWI CODE	NWI DESCRIPTION	COMMON NAME	VEGETATION/SUBSTRATE
L2AB	Lacustrine littoral aquatic bed	pond weeds	pondweed (*Potamogeton* spp.) duckweed (*Lemna*)
L2US	Lacustrine littoral unconsolidated shore	lake shore or flat	mud, sand, gravel
R2UB	Riverine lower perennial unconsolidated bottom	river	mud, sand, gravel
R2US	Riverine lower perennial unconsolidated shore	river flat	mud, sand, gravel
R3UB	Riverine upper perennial unconslidated bottom	river	mud, sand, gravel
R3US	Riverine upper perennial unconsolidated shore	river flat	mud, sand, gravel
R4SB	Riverine intermittent streambed	stream, creek	mud, sand, gravel