

NATIONAL WETLANDS INVENTORY

1:250,000 MAP NARRATIVE
WOODWARD
Includes
1:100,000 Maps
Woodward, NW, SW, NE, SE

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 so 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 a complete description of all wetlands found in the area nor provide complete plant species information.

MAP PREPARATION

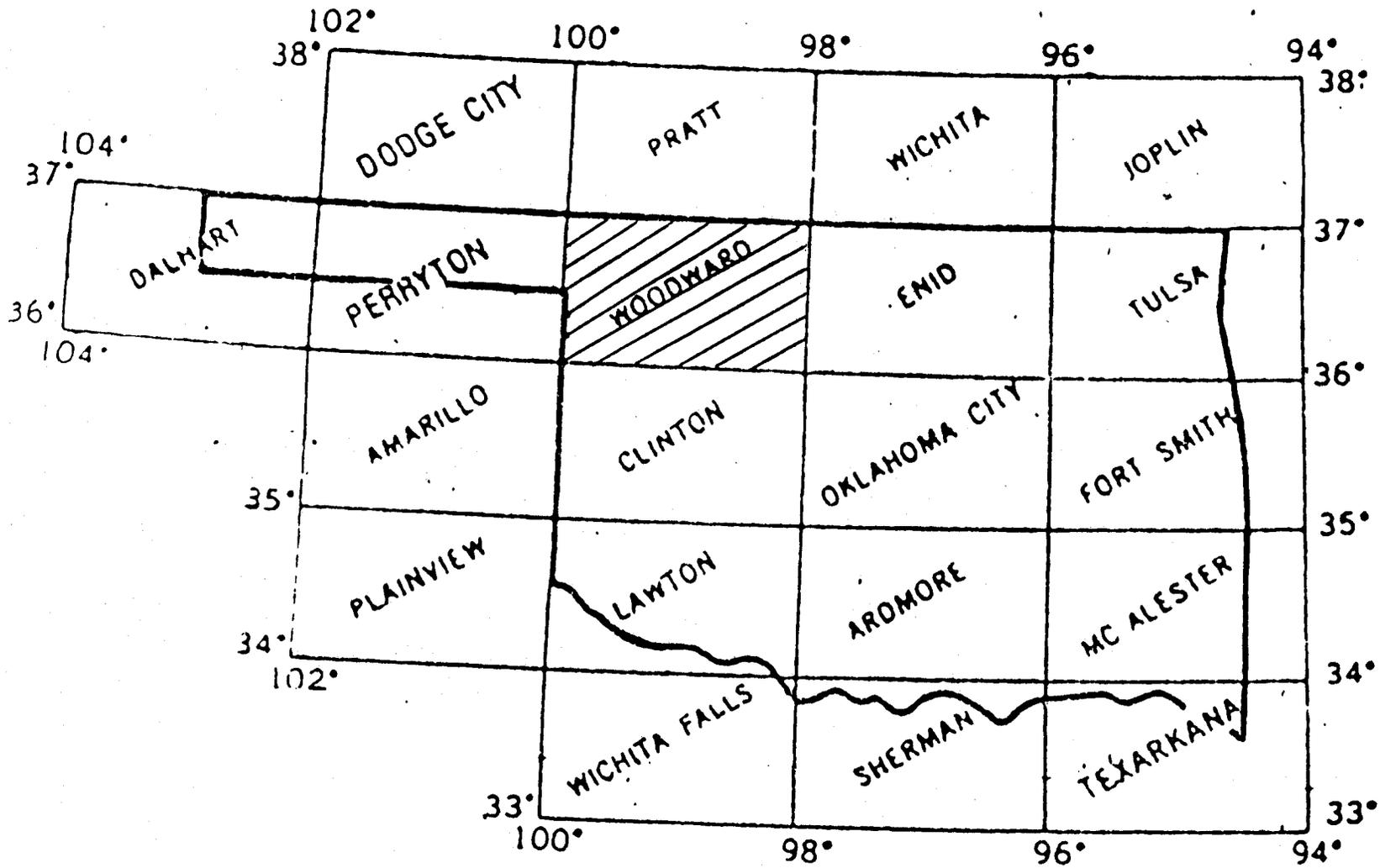
Wetland classification for the NWI maps is in accordance with Classification of Wetlands and Deepwater Habitats of the United States by L.M. Cowardin, et al., 1979.

Wetlands classification and delineations were produced by photo interpretation of high altitude aerial photography. The photography used was color infrared flown by NHAP at a scale of 1:58,000. The photography was taken during the months of September, October, and November 1981, for Woodward NE and SE. The photography for Woodward NW and SW was taken in the months of November 1983, and March 1984. The field checking took place in November 1985. Field checks, soil surveys, and input from regional USFWS personnel were used to relate various photographic signatures to actual wetland identification and classification.

Collateral data included U.S.G.S. topographic maps (7.5 and 15 minute series), SCS soil surveys, climate, and vegetation information.

DRAFT

1:250,000 MAPS OF
OKLAHOMA



STUDY AREA

The maps, Woodward NE, SE, NW, and SW, which are part of the Oklahoma Playa project, are situated in northwest central Oklahoma. The study area is bounded by 98°00' W longitude on the east, 36°00' N latitude on the south, 100° W longitude on the west, and 37°00' N latitude on the north (see illustration).

PHYSIOGRAPHY AND CLIMATE

According to Bailey, Description of the Ecoregions of the United States (1980), the mapping area is divided by two major domains, Humid Temperate and the Dry Domain.

The domain boundary line lies north to south bisecting the Woodward NW and SW maps. The Humid Temperate Domain is to the east of this line and the Dry Domain is to the west (see illustration).

The Humid Temperate Domain is further classified as the Prairie Division, Tall-grass Prairie Province Bluestem-Grama Prairie Section. These ecoregions are in the Woodward NE and SE maps and the eastern half of the Woodward NW and SW.

The physical features of the Bluestem-Grama Prairie Section are known as irregular plains with 50%-80% of the map areas having gentle slopes and approximately 100-300 feet relief. The continental climate has distinct cycles and seasons. Evaporation and precipitation rates are almost balanced.

The Dry Domain is also classified into three major subdivisions: The Steppe Division which is divided by the Great Plains-Shortgrass Province and finally the Grama-Buffalo Grass Section. These ecoregions are located in the western half of the Woodward NW and SW maps.

The terrain of the northwest corner is irregular plains with gentle slopes and relief of 100-300 feet. The majority of this area is Tablelands of Moderate Relief (300-500 feet) over 50%-80% of the area. This ecoregion is known for its high evaporation rate and lack of precipitation. The winters are cold and dry, and summers hot with low amounts of precipitation.

Three major rivers flow through the project area in a northwest to southeast direction: the Salt Fork-Arkansas, Cimarron, and North Canadian or Beaver River. The distance between these rivers is almost equal. The Salt Fork-Arkansas River, in the northeast section of the map, flows into the Great Salt Plains Reservoir and National Wildlife Refuge, then proceeds easterly. The Cimarron River flows almost corner (NW) to corner (SE). Buffalo Creek is a large tributary that connects to the Cimarron in the northwest portion of the map. The North Canadian or Beaver River flows into the Canton Lake Reservoir. The Canton Lake Reservoir is situated in the south central portion of the map. A major tributary of the North Canadian is Wolf Creek, located in the western portion, flows in a northeast direction. The Canadian River criss-crosses the southern map border in several places.

The semi-arid climate for the western half of the Woodward NW and SW map is characterized by yearly temperature averages of 58°-60°. Precipitation averages range from 20-24 inches with a large percentage of it falling in the spring. These averages may seem high but the ecoregion is in a transitional situation.

The continental climate of the remaining Woodward maps includes hot summers along with a distinct winter season. Yearly temperature averages are from 58°-62°F. Precipitation averages are from 22-28 inches, with the bulk of it falling in the spring time. From west to east, through the map area, the precipitation averages increase upwards of 5 inches per year.

The prevalent soil types in the Woodward 1:250,000 map are: Las Animas, Lincoln, Sweetwater, Yahola, Gracemont, and Elmeres. All of these soils are associated with floodplains and their terraces. Soils occurring less frequently, which are associated with depressions or nearly level land, are the Carwile-Pratt, Rardall, Miller, and Dillwyn.

WETLANDS AND DEEPWATER HABITATS

Wetlands and deepwater habitats within the project area fall within the Palustrine, Lacustrine, and Riverine systems. The following paragraphs define both habitats and their characteristics as described in Classification of Wetlands and Deepwater Habitats of the United States, Cowardin, et al. 1980:

Wetland habitats: "In general terms, wetlands are lands where saturation with water is the dominant factor determining the nature of soil development and the types of plant and animal communities living in the soil and on its surface. The single feature that most wetlands share is soil or substrate that is at least periodically saturated with or covered by water. The water creates severe physiological problems for all plants and animals except those that are adapted for life in water or in saturated soil.

"Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes; (2) the substrate is predominantly undrained hydric soil; and (3) the substrate is nonsoil and is saturated with water or covered by shallow water at some time during the growing season of each year."

Deepwater habitats: "Deepwater habitats are permanently flooded lands lying below the deepwater boundary of wetlands. Deepwater habitats include environments where surface water is permanent and often deep, so that water, rather than air, is the principal medium within which the dominant organisms live, whether or not they are attached to the substrate. As in wetlands, the dominant plants are hydrophytes; however, the substrates are considered nonsoil because the water is too deep to support emergent vegetation (U.S. Soil Conservation Service, Soil Survey Staff 1975)."

"Wetlands and Deepwater Habitats are defined separately because traditionally the term wetland has not included deep permanent water; however, both must be considered in an ecological approach to classification. We define five major systems: Marine, Estuarine, riverine, Lacustrine, and Palustrine. The first of these include both wetland and deepwater habitats but the Palustrine includes only wetland habitats." (Cowardin, et al. 1979.)

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.

Changes in the landscape and/or land use could have occurred 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 2. The Project Officer for this wetland map is Warren Hagenbuck, Regional Wetlands Coordinator, U.S. Fish and Wildlife Service, Region 2, 500 Gold St. S.W., P.O. Box 1306, Albuquerque, N.M. 87103. Aerial photo interpretation was completed by Martel Laboratories, Inc., St. Petersburg, Florida. Maps are prepared by the NWI National Team in St. Petersburg, Florida.

Bibliography

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2. Cowardin, L.M., Carter, V., Golet, F.C., and LaRoe, E.T. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Dept. of Interior. U.S. Fish and Wildlife Service. Biological Services Program. Washington D.C. 103p.
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Palustrine

This is the most prevalent wetland system throughout the mapping area. Palustrine forest, scrub/shrub, and emergents consist primarily of bottomland habitat associated with major rivers and streams. Also included are backwater areas of the large reservoirs (Canton Lake, etc.) and areas around the numerous ponds and impoundments. This project area exhibits more diversity among plants than does the Dalhart NE map.

The forested communities which are temporarily flooded, comprise the majority of alluvial type wetlands. Species may include; cottonwood (Populus deltoides), green ash (Fraxinus pennsylvanica), elm (Ulmus sp.) hackberry (Celtis occidentalis), water elm (Planera aquatica) and black willow (Salix nigra). Some seasonally flooded areas consist primarily of willows. Backwater areas of the reservoirs may also contain temporarily and seasonally flooded forested areas. Semipermanently flooded forests will occur less frequently.

The scrub/shrub classification includes cottonwood, willow, and buttonbush (Cephalanthus occidentalis), are all broadleaf deciduous shrubs or small trees. The cottonwood and willow may be found in a temporary flooded condition in streambeds or reservoirs. Willows will predominate a seasonally flooded area. Buttonbush is generally within the confines of semipermanently flooded situations. The only needleleaf deciduous species is Salt Cedar (Tamarix sp.). This plant is also found primarily along major rivers and their floodplains. It is temporarily flooded in most situations, although on river bars and flats it may be seasonally flooded.

Emergents in the Woodward area comprise three basic communities: bottomland, farmed wetlands and backwater areas including those along reservoirs.

Bottomland emergents include Juncus sp., Distichlis sp., Polygonum sp., Scirpus sp., Carex sp., and Typha latifolia. Backwater areas will include the preceding types in addition to Phragmites sp. and Spartina sp. The farmed wetlands are denoted by an 'f' modifier, where a depression or pothole has been altered by a farmer but would revert back to a wetland when left undisturbed. Species typically include Polygonum sp. or Juncus sp.

The aquatic beds, Duckweed (Lemna sp.) and American Lotus (Nelumbo lutea), are classified as floating vascular, and rooted vascular (respectively). Generally these plants are only found in areas of semi-permanent or permanent flooding.

Lacustrine

Natural or artificial open water bodies of 20 acres or more are classified as Lacustrine. The Lacustrine system includes the classes of unconsolidated bottom (L1, L2-UB), unconsolidated shore (L2US) and aquatic bed (L1, L2-AB). Nonvegetated Lacustrine substrates which are exposed at sometime during the year are classified as unconsolidated shore (L2US-A,C) or unconsolidated bottom (L2UBF). The Lacustrine system is present in the study area as a natural, impounded, or excavated water body. Lacustrine aquatic beds are classified similar to those in the Palustrine system.

Riverine

The Riverine system includes the classes: Unconsolidated bottom (UB), unconsolidated shore (US), and streambed (R4SB). Unconsolidated bottom (R2UBH) and shore are restricted to the Riverine lower perennial subsystem (R2). Streams which do not flow throughout the year are classified as Riverine Intermittent streambed (R4SB-J,A,C,F). In some cases, perennial streams or the topographic quadrangle are called R4SBC or R4SBF. This is done where streambeds are actually dry during some part of the growing season or flow during most of the year but dry up before the end of the year. Some streams may be excavated (x) to improve drainage or routing.

Water Regimes

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

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

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

Saturated Flooded (B) - Surface water is seldom present, but substrate is saturated to the surface for extended periods during the 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 sometimes variable, ranging from a saturated condition to one in which the water table is well below the ground's surface.

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

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

Special modifiers included on these NWI maps, where applicable, are:

Partly Drained (d): The water level has been artificially lowered, but the area is still classified as wetland because soil moisture is sufficient to support hydrophytes. Drained areas are not considered wetland if they can no longer support hydrophytes.

Diked/Impounded (h): Created or modified by a barrier, dike, or dam which obstructs the inflow or outflow of water.

Excavated (x): Lies within a basin or channel excavated by man.

Farmed (f): The soil surface has been mechanically or physically altered for crop production, but hydrophytes will reestablish themselves if farming is discontinued. This applies only for:
1. farmed prairie potholes and pothole depressions, 2. farmed intermittent lake bottoms (playa lakes).

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
L1UB	Lacustrine limnetic unconsolidated bottom	Open water, lake	Unvegetated mud, sand, gravel
L2UB	Lacustrine littoral unconsolidated bottom	Shallow open water lake, lake bottom	Unvegetated mud, sand, gravel
L2US	Lacustrine littoral unconsolidated shore	Lake shore	Unvegetated mud, sand, gravel
L1AB	Lacustrine limnetic aquatic bed	Pond weeds, water weeds	Duckweed (<u>Lemna</u> sp.)
L2AB	Lacustrine littoral aquatic bed	Pond weeds, water weeds	Duckweed (<u>Lemna</u> sp.)
R2UB	Riverine lower perennial unconsolidated bottom	Open water, river, stream	Unvegetated mud, sand, gravel
R2US	Riverine lower perennial unconsolidated shore	River flat or bar	Unvegetated mud, sand, gravel
R4SB	Riverine intermittent streambed	Intermittent stream or creek	Unvegetated mud, sand, gravel
PUB	Palustrine unconsolidated bottom	Open water, pond bottom	Unvegetated mud, sand, gravel
PUS	Palustrine unconsolidated shore	Pond shore	Unvegetated mud, sand, gravel

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
PAB3	Palustrine aquatic bed, rooted vascular	Pond weeds, water weeds	American Lotus (<u>Nelumbo lutea</u>)
PAB4	Palustrine aquatic bed, floating vascular	Pond weeds, water weeds	Duckweed (<u>Lemna</u> sp.)
PEM1	Palustrine persistent emergent	Marsh or wet meadow Lake shore	Bulrush (<u>Scirpus</u> sp.) Cattail (<u>Typha latifolia</u>) Cocklebur (<u>Xanthium</u> sp.) Groundsel (<u>Baccharis</u> sp.) Cyperus (<u>Cyperus</u> sp.) Rush (<u>Juncus</u> sp.) Sedge (<u>Carex</u> sp.) Smartweed (<u>Polygonum</u> sp.) Saltgrass (<u>Distichlis</u> sp.) Cordgrass (<u>Spartina</u> sp.) Water-willow (<u>Justicia americana</u>) Aster (<u>Aster</u> sp.) Dock (<u>Rumex</u> sp.) Spikerush (<u>Eleocharis</u> sp.) Horsetail (<u>Equisetum</u> sp.) Phragmites (<u>Phragmites</u> sp.)
PSS1	Palustrine broad leaved deciduous scrub/shrub	Shrub wetland	Cottonwood (<u>Populus deltoides</u>) Buttonbush (<u>Cephalanthus occidentalis</u>) Willow (<u>Salix nigra</u>)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION/SUBSTRATE
PSS2	Palustrine needle leaved deciduous	Shrub wetland	Salt Cedar (<u>Tamarix</u> sp.)
PF01	Palustrine broad leaved deciduous forest	Shrub wetland	Cottonwood (<u>Populus deltoides</u>) Green ash (<u>Fraxinus penn-</u> <u>sylvanica</u>) Hackberry (<u>Celtis</u> <u>occidentalis</u>) Elm (<u>Ulmus</u> sp.) Water elm (<u>Planera aquatica</u>) Willow (<u>Salix nigra</u>) Catalpa (<u>Catalpa</u> sp.)