

NATIONAL WETLANDS INVENTORY

NOTES TO USERS

EAST CENTRAL TEXAS

1:100,000 Scale Maps Covered

LUFKIN (Palentine SE)

CROCKETT (Palentine SW)

NATIONAL WETLANDS INVENTORY
1:100,000 MAP NARRATIVE

PALESTINE SW
PALESTINE 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 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 study area is defined by the southern half of the Palestine 1:250,000 scale map. Included in this area are the floodplains associated with the Trinity, Angelina, and Neches Rivers. Major lacustrine impoundments include Houston County Lake, Lake Livingston, Kurth Lake and Lake Sam Rayburn. The Angelina National Forest as well as the Davy Crockett National Forest are included within the study area.

BAILEY'S ECOREGIONS

The area of east Texas considered in this report is comprised of many diverse physiographic regions and, as such, has been divided among three vegetative provinces (Bailey, 1978). The eastern section of the study area is within the Beech-Sweetgum-Magnolia-Pine-Oak Forest Section of the Humid Subtropical Division. This temperate rainforest is represented by climax vegetation of evergreens, oaks and magnolia. These forests have a well developed understory as leaf canopy is less dense and trees are not as tall as in low-altitude rainforests.

A larger percentage of the study area is contained within the Southern Mixed Forest Province of the Humid Subtropical Division. The characteristic vegetation of a climax community is tall broadleaf deciduous and needle leaf evergreen trees. A good representative mix would be dominated by pines, including loblolly, shortleaf and southern yellow species in association with hickory, oak, blackgum, red maple and winged elm. Grasses are represented by the bluestem panicums and longleaf uniola.

A very small portion of the study area to the far west is contained within the Oak Bluestem Parkland Section of the Prairie Parkland Province, and is represented by an intermingling of prairie, groves, and strips of deciduous trees.

The terrain of the study area can be described as irregular plains with 50 - 80% or more of the area gently sloping and elevations ranging from 100 to 300 feet. Less frequently reached are elevations of 500 feet.

Climatic conditions for the study area can be described as having mild winters and hot, humid summers. The average annual temperature is 60° to 70°F. Precipitation averages 40 to 60 inches annually, of which snowfall is rarely represented. The heaviest months for rainfall are April through September.

Soil is an important element of hydric conditions and is one of the criteria used to define wetlands. The majority of inventoried soil types found in the area of study are indicative of upland situations and classified as moderately well drained, loamy soils.

Poorly drained (hydric) soils which support wetland vegetation are usually limited to the river valley areas of the Trinity, Angelina and Neches Rivers. These soils have a high potential for pasture land as well as hardwood forest.

MAP PREPARATION

Wetland classification for the NWI maps is in accordance with "Classification of Wetlands and Deep-Water Habitats of the United States," Cowardin, et al, 1979.

Wetland classification and delineations were produced by air photo interpretation of high level aerial photography. The photography used was 1982, color infrared at a scale of 1:65,000.

The aerial photography used for mapping is of excellent quality and was taken during the months of March and November 1982. In an attempt to minimize inaccuracies in correlating ground conditions to photography, soil surveys were followed closely in problem areas. A field trip was conducted in April 1984 in order to relate various photographic signatures to actual wetland classification.

Collateral data included U.S.G.S. topographic maps (7.5 minutes), soil, climate, and vegetation information from available U.S.D.A. Soil Surveys (Dolezel, Fuchs, 1980). Large-scale NWI wetland maps (1:24,000 scale) are available for the U.S.G.S. 7.5 minute topographic sheets which are included within the study area indicated on Index Map A.

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 those wetland maps is Warren Hagenbuck, Regional Wetlands Coordinator, U.S. Fish and Wildlife Service, Region 2, P.O. Box 1306, Albuquerque, N.M. 87103. Aerial photo interpretation was completed by Martel Laboratories, Inc., St. Petersburg, Florida. Maps were prepared by NWI National Team in St. Petersburg, Florida.

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).

CHARACTERISTICS OF NWI WETLAND SYSTEMS IN PALESTINE SW AND PALESTINE SE

PALUSTRINE SYSTEM

In Palestine SW and SE, one of the more common Palustrine wetlands is open water. These are usually small impounded or excavated farm ponds (POWHh, POWHx) used for watering livestock. These are generally permanently flooded. Farm ponds which dry up sometime during the year are generally classified as PUSCh or PUBFh depending on periodicity of water present.

Palustrine aquatic beds (PAB) commonly consist of duckweed (Lemna spp.), waterlily (Nymphaea spp.), lotus (Nelumbo spp.), pennywort (Hydrocotyle spp.), and arrowhead (Sagittaria spp.).

Palustrine emergent wetlands characteristically are temporarily or seasonally flooded depressions with persistent hydrophytes often located in floodplain areas (PEM1A, PEM1C). Many are too small to map. Common emergents include rush (Juncus), smartweed (Polygonum), bulrush (Scirpus), spikerush (Eleocharis), and sedge (Cyperus spp.). Emergents such as cattails (Typha spp.) and sedge (Cyperus spp. and Carex spp.) are found in semipermanently flooded areas (PEM1F).

The classification of scrub/shrub or forested wetlands is determined by the height of woody vegetation; forested being greater than 6 meters and scrub/shrub being less than 6 meters.

Common woody wetland species typically include willow (Salix spp.), green ash (Fraxinus pennsylvanica), willow oak (Quercus phellos), water oak (Quercus nigra), sweetgum (Liquidambar styraciflua), American hornbeam (Carpinus caroliniana), river-birch (Betula nigra), southern red oak (Quercus falacata) and honey locust (Giladitsia triacanthos). Less commonly possum haw (Ilex decidua) and planner tree (Planera aquatica) are found.

A few sites with cypress (Taxodium distichum) were noted. Cypress swamps are usually semi-permanently flooded (PFO2F). Where a break between broad-leaved deciduous and needle-leaved deciduous subclasses could not be reliably made, a general deciduous subclass was used. An important wetland shrub found in the study area is buttonbush (Cephalanthus occidentalis). This shrub is characteristic of seasonal and more often, semi-permanently flooded wetlands.

LACUSTRINE SYSTEM

Natural or artificial unvegetated basins greater than 20 acres are classified as Lacustrine. All Lacustrine wetlands are impounded within the study area. Significant fluctuation in water level occurs in many of these lakes due to artificial inundation and drainage. The water is drawn down in anticipation of high water and is allowed to flood back temporarily, to prevent flooding downstream. Collateral data was available concerning flood pool elevations on the exact date of the photography as well as conservation pool elevation data for some lakes within the study area (U.S. Army Corps of Engineers - Fort Worth District). This data was used to modify the photo interpretation process when necessary to insure a more accurate representation of normal level of reservoir flooding. The most common Lacustrine classification is open water (L1OWHh, L2OWHh). The lake margins, exposed due to the extreme fluctuations in water level, are classified as seasonally flooded unconsolidated shore (L2USCh) or occasionally as semi-permanently flooded unconsolidated bottom (L2UBFh). More recent impoundments may have standing dead trees (PFO5Hh). Houston County Lake, Lake Livingston, Kurth Lake and Lake Sam Rayburn are the most significant Lacustrine systems within this study area.

Lacustrine aquatic beds (L1AB, L2AB) commonly consist of duckweed (Lemna spp.), water lily (Nymphaea spp.), lotus (Nelumbo spp.), pennywort (Hydrocotyle spp.), and arrowhead (Sagittaria spp.).

RIVERINE SYSTEM

The Riverine system includes the classes open water (OW), unconsolidated shore (US), and streambed (SB). In this study area open water and unconsolidated shore are restricted to the Riverine lower perennial (R2OW) subsystem. 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). Some Riverine systems have their banks lined with trees or shrubs. In cases where streamside Palustrine wetland vegetation cannot be separately delineated from the Riverine system, the wetlands are mapped as linear Palustrine features.

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.

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

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 variable, being near the land surface to well below the land surface.

Semi-permanently Flooded (F) -- Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or near the land surface.

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

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

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.

TABLE 1. SUMMARY OF WETLANDS AND DEEPWATER HABITATS

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
POW	Palustrine open water	Pond	Open water
PAB3	Palustrine aquatic bed	Pond weeds	<u>Nymphaea</u> (water lily) <u>Hydrocotyle</u> (pennywort) <u>Myriophyllum</u> (milfoil)
PAB4	Palustrine aquatic bed	Pond weed	<u>Lemna</u> (duckweed)
PUS	Palustrine unconsolidated shore	Pond shore	Exposed pond shore
PUB	Palustrine unconsolidated bottom	Pond bottom	Exposed pond bottom
PEM1	Palustrine emergent, persistent.	Marsh, wet meadow	<u>Scirpus</u> (bulrush) <u>Typha</u> (cattail) <u>Juncus</u> (rush) <u>Eleocharis</u> (spikesedge) <u>Carex</u> spp. (sedge) <u>Polygonum</u> (smartweed)
PSS1	Palustrine scrub/shrub broad-leaved deciduous	Shrub swamp	<u>Salix</u> spp. (willow) <u>Cephalanthus occidentalis</u> (buttonbush)
FFO1	Palustrine forested broad-leaved deciduous	Forested wetland	<u>Salix nigra</u> (black willow) <u>Fraxinus pennsylvanica</u> (green ash) <u>Celtis</u> spp. (hackberry) <u>Quercus</u> spp. (oaks) <u>Liquidambar styraciflua</u> (sweetgum) <u>Betula nigra</u> (river birch)
FFO2	Palustrine forested, needleleaf evergreen	Swamp	<u>Taxodium distichum</u> (cypress)

TABLE 1. SUMMARY OF WETLANDS AND DEEPWATER HABITATS

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
L1OW	Lacustrine open water	Lake	Open water
L2US	Lacustrine littoral unconsolidated shore	Lake flat	Unvegetated mud, sand, gravel
L2UB	Lacustrine littoral unconsolidated bottom	Lake bottom	Unvegetated mud, sand, gravel
L2AB	Lacustrine aquatic bed	Pond weeds, water weeds	<u>Nymphaea</u> (water lily) <u>Lemna</u> (duckweed) <u>Hydrocotyle</u> (pennywort)
R2OW	Riverine lower perennial open water	River, stream	Open water, year round
R4SB	Riverine intermittent streambed	Intermittent stream	Unvegetated river bottom
R2US	Riverine unconsolidated shore	River bar, river flat	Unvegetated mud, sand, gravel
R2UB	Riverine unconsolidated bottom	River bottom	Unvegetated mud, sand, gravel

LITERATURE CITED

Bailey, R.G., 1978. Description of the Ecoregions of the United States. U.S. Dept. of Agriculture, Forest Service, 77 pp.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRue, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Dept. of Interior, Fish and Wildlife Service, FWS/PBS-79/81, 103 pp.

Dolezel, Raymond and Fuchs, Charles, 1980. Soil Survey of Nacogdoches County, Texas, U.S. Dept. of Agriculture, Soil Conservation Service, 146 pp.