NATIONAL WETLANDS INVENTORY

1:100,000 Map Narrative

Tulsa SW
Tulsa SE
Tulsa NE
Tulsa NW

INTRODUCTION

In 1974, the U.S. Fish and Wildlife Service directed its Office of Biological Services to complete an inventory of the nation's wetlands. As part of this overall objective, an effort began in August 1981 to delineate and classify wetlands through photo interpretation combined with field checking in the eastern section of Oklahoma including small portions of Arkansas and Missouri. A total of fourteen 1:100,000 scale maps are to be produced:

McAlester NW, NE, SW, SE

Oklahoma City NE, SE

Tulsa NW, NE, SW, SE,

Fort Smith NW, NE, SW, SE

Wetland maps at 1:100,000 scale and wetland overlay maps at 1:24,000 are produced at National Wetlands Inventory headquarters in St. Petersburg, Florida. Information regarding final Oklahoma maps is available from the U.S. Fish and Wildlife Service's regional office located in Albuquerque, New Mexico. An intergral part of all final wetland maps is the completion of narrative reports for each U.S. Geological Survey 1:100,000 quadrangle inventoried. The following narrative report provides both basic and specific data which aid the user in understanding not only the

general area of the Tulsa SW quadrangle but also representative details of its wetland habitat.

Map Preparation

The wetland classifications that appear on the Tulsa SW wetland maps are in accordance with Cowardin et al. (1979). The delineated mapping units resulted from stereoscopic interpretation of 1:58,000 scale color-infrared transparencies taken in April 1980 and March 1981. The delineations were transferred to 1:24,000 scale U.S. Geological Survey topographic maps or orthophoto quads with a zoom transfer scope.

The photography ranges from excellent to somewhat poor in quality. While many strips are of very good quality, others, due to either poor exposure or development, show characteristics of excessive bleaching. This condition is most severe at the center of the photograph and lessens toward the edges. Consequently the edges of many of the photographs are very dark. Problems encountered because of these defects stem from tonal differences of areas that actually have similar covertypes. This decreases consistency and reliability of delineations and makes tying of adjacent photographs very difficult. The clarity of the imagery is generally good.

Field work was conducted under drier conditions than represented by the photography. Considerations were made for this during the interpretation phase.

Collateral data included U.S.G.S. topographic maps (7.5 min. and 15 min.) and Soil Conservation Service soil surveys.

Map users are cautioned that mapping with high altitude aerial photography has limitations. Wetlands are identified and classified through stereoscopic examination of photography on the basis of photo characteristics (e.g. tone, texture, pattern, site, and size) in addition to local ecology, and cultural patterns. Aerial photographs reflect conditions during the year and season in which they were taken. In addition, the small scale of the photography limits the size of the mapping unit, thus precluding delineation of very small wetlands, (less than 1/4 acre approximately) and narrow linear wetlands, (less than 15 feet wide approximately).

Changes in the landscape and/or land use could have occurred since the time of photography, therefore some descrepancies between the map and current field conditions may exist.

Any discrepancies 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, P.O. Box 1306, Albuquerque, New Mexico 87103.

Field Work Completed

Two preliminary field trips were conducted on August 10th to the 14th, 1981 and September 21st to the 25th, 1981 respectively, in order to relate various photographic characteristics to actual wetland classification. Additional ground truthing occurred following completion of draft wetland inventory maps to evaluate the accuracy of initial photo interpretation.

Bailey's Ecoregions

Most of Tulsa SW lies within the Prairie Parkland Province. Vegetation in the Prairie Parkland Province is forest steppe, characterized by the intermingling of prairie, groves, and strips of deciduous trees. Grasses, especially bluestem prairie, are the main occurring plants in the prairie vegetation. Deciduous forest encroaches on the prairies where fire and grazing are controlled. The upland forest is dominated by oak and hickory. Elm, sycamore, oaks, hackberry, cottonwood, and willow are common on flood plairs and bottomlands.

A small part of Tulsa SW (south-eastern portion) lies within Bailey's (1978) Eastern Deciduous Forest Province. Tall broadleaf forest is characteristic of this province. Common trees of upland areas include oaks, hickory, beech, maple, elm, and hornbeam. Wetland forest types include ash, willow, elm, blackgum, birch, and many hydrophytic shrubs. The dense canopy of undisturbed forests generally allows only a sparse ground cover of forbs to develop.

Climate

According to SCS Soil Surveys, Tulsa SW has warm, temperate, continental climate. It has an average of 40 inches of precipitation annually. May, June, September and October are the wettest months; November through February plus July and August are the dryest. There are about 215 frost-free days. Winters are generally mild. Snow falls in most years averaging six inches annually. Summers are hot. Reduced rain fall and high temperatures in July and August speed evaporation, drying the soil. Droughts of several weeks are not uncommon. The prevailing wind is southeasterly.

Geography

The terrain of the study area is flat to rolling in nature. Elevations range from 600 to 900 feet. The slope is gently to the south. The major rivers that form these drainage systems are as follows: Verdigris River, Neosho River and Caney River. The soil color varies from red to brown to gray and is slightly to moderately acid.

The major land use is farming with beef and dairy cattle production and crop production being the most important land utilization types. Major cash crops are grain sorghum, soybeans and alfalfa. A large acreage is cut for hay.

Surface mining was evident on the photography. Coal, natural gas, oil and sandstone are important resources found in this area.

Soils

Soil is an important element of wetlands and is one of the criteria used to define wetlands. The most extensive wetland soils are located in long flood plains along rivers and streams. According to S.C.S. soil surveys, soils frequently flooded in the study area include: Osage, Wynona, Choska, Radley and Verdigris. These soils are typically nearly level loams and clays located ir bottomlands. They are flooded at least annually. Unless artificially protected, they have low potential for cultivation or urban uses.

CHARACTERISTICS OF NWI WETLAND SYSTEMS IN TULSA SW

MARINE AND ESTUARINE SYSTEMS

No marine or estuarine wetlands are found in Tulsa SW.

LACUSTRINE SYSTEM

With few exceptions all lacustrine wetlands are impounded. 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. The lake margins, exposed due to the extreme fluctuations in water level, are classified as seasonaly flooded unconsolidated shore (L2USCh) or occasionally as semi-permanently flooded unconsolidated bottom (L2UBFh). Oologah Lake, Spavinaw Lake, Lake Hudson and Fort Gibson Lake are the most significant lacustrine system impoundments included in this study area.

Field trips revealed that some of the forested areas adjacent to impoundments that had been classified as dead (PFO5Hh) are, in fact, living trees (PFO6Hh). The PFO5Hh wetlands that were field checked, and were found to be living trees, were changed. However, we suspect that there are more living trees that are classified as dead.

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

Riverine

The study area contains various types of riverine systems. The major type is lower perennial (R2OWH), exhibiting a dendritic drainage pattern with associated floodplain; however, some upper perennial rivers (R3OWH) do exist. Many of the lower perennial rivers overflow their banks two or three times a year. Usually, intermittent streams were found to have a seasonal water regime (R4SBC). These streams will dry up in late summer in most years.

Palustrine

In Tulsa SW, the most common palustrine wetland is open water. These are usually small impounded or excavated farm ponds (POWHh), POWHx) used for watering livestock. These are generally permanently flooded. Field checks reveled that many of the POW type wetlands converted to PAB because of the growth of aquatic vegetation during the summer months. The maps will depict these wetlands as POW based on our photointerpretation, but one should keep in mind that coversion to PAB does occur during the growing season on many of the POW wetlands. Common plants include duckweed, water primrose, water lily and pondweed.

Palustrine emergent wetlands characteristically are temporarily or seasonally flooded depressions with persistent hydrophytic vegetation located in cultivated land pastures and odd areas (PEMIA, PEMIC). Many are too small to map. Common genera include Juncus, Polygonum, Panicum, and Carex. Genera such as Typha and Zizaniopsis are found in semipermanently flooded areas (PEMIF).

Palustrine forested (PFOIA, PFOIC) and scrub/shrub (PSSIA, PSSIC) wetlands are typified by a bottomland hardwood association of green ash (Fraxinus pennsylvanica), hackberry (Celtis occidentalis), pecan (Carya illinsensis), willow (Salix spp.), cottonwood (Populus deltoides), elm (Ulmus spp.) and sycamore, (Platanus occidentalis). Buttonbush (Cephalanthus occidentalis), willow (Salix nigra), and speckled alder (Alnusrugosa) are common in the wetter sites (PSSIF).

LITERATURE CITED

Bailey, E.G. 1978. Description of the ecoregions of the United States. U.S. Dept. Agric., For. Serv., Misc. Pub. 1391. 77 pp.

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