

NATIONAL WETLANDS INVENTORY

1:100,000 Map Narrative

Ft. Smith SW

INTRODUCTION

In 1974, the U.S. Fish and Wildlife Service directed its Office of Biological Services to complete an inventory of the nations 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 Ft. Smith SW quadrangle but also representative details of its wetland habitat.

Map Preparation

The wetland classifications that appear on the Ft. Smith 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 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 color tone differences of areas that actually have similar covertypes. Furthermore, variations in photo characteristics increase the time necessary for a consistency of reliable delineations, thus making tying of adjacent photographs very difficult. Field work was necessary to help alleviate this problem. The clarity of the imagery is generally good.

The photography was taken during March and April when ground conditions were near or at saturation. Field work was conducted in September under drier conditions. 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. Specific mapping conventions developed at NWI headquarters were used to assist in photo-interpretation.

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 discrepancies 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 field trips were completed. The first August 10 to 14, 1981 was conducted in order to relate various photographic characteristics to actual wetland classification. A second trip from September 21 to 25, 1981 was undertaken to visit sites missed on the first field trip and to devote further study to areas of concern. Most of the field time was devoted to water regime determination of forested areas.

Bailey's Ecoregions

Ft. Smith SW lies mostly within Bailey's (1978) Prairie Parkland Province. The climax vegetation is medium to tall forest of deciduous and evergreen trees. In this area, oak, hickory, and shortleaf pine are the major upland forest types. Wetland forest types include ash, willow, and cottonwood. The main grasses are bluestem, panicum, and longleaf uniola.

Vegetation in the Prairie Parkland Province is forest-steeppe, characterized by the intermingling of prairie, groves, and strips of deciduous trees. Grasses, especially bluestem prairie, are the main occurring plants in 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, cottonwood, and willow are common on flood plains and bottomlands.

Climate

According to SCS Soil Surveys, Ft. Smith SW has warm, temperate, continental climate. An average of 43 inches of percipitation is evenly distributed throughout the year with a slightly higher precentage falling in spring. May, June and August are the wettest months; October through February and July 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 speed evaporation, drying the soil. Droughts of several weeks are not uncommon.

Geography

The terrain of the study area is flat to moderately rolling in nature. Elevations range from 100 to 800 feet. The relief is characterized by narrow to broad valleys separated by ridges and escarpments. The slope is gently to the southeast. The underlying material in the lowlands is erodeable shale while the more resistant sandstone forms the ridges that usually act as watershed divides between the drainage systems of the creeks. The major rivers and creeks that form these drainage systems are as follows: Arkansas and the North and South Forks of the Canadian. 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 cotton, soybeans and alfalfa. A large acreage is cut for hay.

Surface mining was evident on the photography. Coal, natural gas 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: Guyton, Mhoon, Rexor, Roebuck, and Verdigris. These soils are typically nearly level loams and clays located in 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 FT. SMITH SW

MARINE AND ESTUARINE SYSTEMS

No marine or estuarine wetlands are found in Ft. Smith 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 water level at the instant of photography (April 1980, March 1981) is assumed to approximate normal water level. 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 (PF05Hh). Lake McAlester and Lake Henryetta are the most significant lacustrine system impoundments included within this study area.

Lacustrine aquatic beds (L1AB, L2AB) commonly consist of duckweed (Lemma 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 Ft. Smith 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.

Palustrine emergent wetlands characteristically are temporarily or seasonally flooded depressions with persistent hydrophytic vegetation located in cultivated land (PEMIA, PEMIC). Many are too small to map. Common genera include Juncus, Polygonum, Polygonum, Potamogeton, 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), river-birch (Betula nigra), willow (Salix spp.), cottonwood (Populus deltoides), elm (Ulmus spp.) and sycamore, (Platanus occidentals). Buttonbush (Cephalanthus occidenalis) and speckled alder (Alnus rugosa) are common in the wetter sites (PSSIF).

A few sites with cypress (Taxodium distichum) were noted. Cypress swamps are usually semipermanently or seasonally flooded (PFO2F), PFO2C). Where a break between broad-leaved deciduous and needle-leaved deciduous subclasses could not be reliably made, the general deciduous subclass (PFO6) was used.

Palustrine aquatic beds (PAB) are found throughout the quadrangle. Common plants include duckweed, water lily, and lotus.

LITERATURE CITED

Bailey, E.G. 1978. Description of the ecoregions of the U.S. USDA. (Forest Service. Intermtn. Reg. Ogden, Utah. 77p.)

Cowardin, L.M., V. Carter, F.C. Golets, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. USDI. Fish and Wildlife Service, FWS/PBS-79/81. 103p.

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