D

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 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 integral 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, 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. These differences in water regime were considered 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 ie. exposure, 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 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

Ft. Smith SW lies mostly within Bailey's (1978) Prairie Parkland Province. The climax vegetation consists of forest-steppe characterized by the intermingling of prairie with oak hickory and oak hickory pine forest stands in the uplands and riparian and floodplain forest along the stream systems. Wetland forest species include ash, elm, sycamore, oaks, willows and eastern cottonwood. The dominant grass species are the bluestems, gramas and panicums.

## Climate

According to SCS Soil Surveys, Ft. Smith SW has warm, temperate, continental climate. An average of 43 inches of precipitation is evenly distributed throughout the year with a slightly higher percentage falling in spring. May and June are the wettest months; with October through February and July and August usually the dryest. There are about 215 frost-free days. Winters generally are mild. Snow falls in most years, averaging six inches annually. Summers are hot. Typically, reduced rain fall and high temperatures during July and August speed evaporation, resulting in greatly increased evapotranspirative rates. Droughts of several weeks are not uncommon.

## Geography

Generally, the terrain of the study area is level to moderately rolling in nature. The greatest local relief occurs in the southeastern corner of Ft. Smith SW. Elevations range from 500 to over 1500 feet. The relief is characterized by narrow to broad valleys separated by ridges and escarpments. The overall surface slope is generally to the southeast. The underlying material in the lowlands is erodeable shale while more resistant sandstone forms the ridges which serve as watershed divides between drainage systems. The major streams in Ft. Smith SW are the Arkansas, Canadian, and North Canadian Rivers and Deep Fork, Dirty, Gaines and Sans Bois Creeks.

The major land use is farming with the productivity of beef and dairy cattle and crops, constituting the most extensive types of land utilization. Major cash crops are wheat, grain, sorghum, cotton, soybeans, alfalfa and native prairie hay.

Surface coal mining occurs throughout Ft. Smith SW. Natural gas and sandstone together with coal are important mineral 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, these soils 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 in Ft. Smith SW were found to be impounded. Since most of the impounded water bodies serve flood control functions, significant annual and seasonal fluctuations in water levels occur in many of these lakes.

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). Lakes Eufaula, Robert S. Kerr, McAlester and Henryetta are the largest lacustrine system impoundments found within Ft. Smith SW.

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 tree areas that are classified as dead.

## 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 streams (R3OWH) also were delineated. Many of the lower perennial streams overflow their banks two or three times a year. Numerous intermittent streams, having a seasonal water regime (R4SBC), also were found to occur. Flow in these streams generally ceases in late summer of most years.

## Palustrine

In Ft. Smith SW, the most common palustrine wetland class 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 revealed 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 conversion to PAB does occur during the growing season on many of the POW wetlands. Common aquatic plants include water primrose, water lily and pondweed.

Palustrine emergent wetlands characteristically are temporarily or seasonally flooded depressions with persistent hydrophytic vegetation. Many are located on intermittently cultivated land in floodplains. Small numbers of semipermanent and permanently flooded palustrine wetlands (PEM1F, PEM1H) also occur. A substantial proportion are too small to permit classification from aerial photographic imagery. Common plant genera include Juncus, Polygonum, Potamogeton, and Carex.

Palustrine forested (PFO1A, PFO1C) and scrub/shrub (PSS1A, PSS1C) wetlands are typified by a bottomland hardwood association of green ash (Fraxinus pennsylvanica), river birch (Betula nigra), willow (Salix spp.), eastern cottonwood (Populus deltoides), elms (Ulmus spp.) and sycamore, (Platanus occidentalis). Buttonbush (Cephalanthus occidentalis) and swamp privet (Forestiera acuminata) are common in the wetter sites (PSS1F).

## LITERATURE CITED

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

Cowardin, L.M., V. Carter, F.C. Golets, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Dept. Inter., Fish and Wild. Serv., FWS/OBS-79/31. 103 pp.

U.S. Soil Conservation Service. Soil Surveys of Counties. U.S. Dept. Agric. SCS/Oklahoma Agric. Exp. Sta., Stillwater, Ok.