DRAFT

NATIONAL WETLANDS INVENTORY

NOTES TO USERS

1:100,000 SCALE MAP

POPLAR BLUFF NE

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1:100,000 MAP NARRATIVE

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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 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 the "Classification of Wetlands and Deepwater Habitats of the United States" by L. M. Cowardin, et al., 1979.

Wetland classification and delineations were produced by photo interpretation of high level aerial photography. The photography used was NHAP color infrared at a scale of 1:58,000. The photography was taken during February and April of 1984 and March of 1985. To correctly classify the wetlands, ground truthing, soil surveys, and input from regtional U.S.F.W.S. personnel were used to relate the various photographic signatures to actual wetland identification and calssification. Initial ground truthing with the photography occurred in November of 1986. Collateral data included U.S.G.S. topographic maps (7.5 and 15 minute series), and vegetation information.

The user of the map is cautioned that, due to the limitation of mapping primarily through aerial photointerpretation, a small percentage of wetlands may have gone unidentified. Changes in the landscape or habitat could have occurred since the time of photography. Therefore, some discrepancies between the map and current field conditions may exist. Any discrepancies that are encountered in the use of this map should be brought to the attention of Ron Erickson, Regional Wetlands Coordinator; U.S. Fish and Wildlife Service, Region 3, Federal Bulding, Ft. Snelling, Twin Cities, MN 55111.

GEOGRAPHICAL OVERVIEW:

Location

The mapping area is located in the southeastern corner of Missouri. The eastern boundary follows 90°00 W longitude line and extends westward to 91°00 W longitude, northward to 37°00 N latitude, and southward to 36°00 N latitude.

Ecoregion and Vegetation

The Southeastern half of the 1:100,000 area is defined ecologically by Bailey (1981) as Southern Forest Flood Plain Section, Outer Coastal Plain Forest Province, Subtropical Division, Humid Temperature Domain. Our mapping area represents the extreme northward extent of the ecoregion which extends from the Gulf of Mexico up the Mississippi River floodplain. Consequently, the vegetation in this area represents more of an ecocline situation. There is a diffusion of the more temperate evergreen species commonly found in the Southern Forest Flood Plain Ecoregion, such as evergreen oaks, bald cypress, and members of the laurel and magnolia families with the temperate deciduous northern forest species of the neighboring Oak-Hickory Ecoregion. In addition, it has been estimated that 90% of the natural bottomland forest vegetation in Southeast Missouri, including the land contained in this map, has been cleared and converted to cropland, mostly cotton and soybeans. (Dieffenbach)

The remaining northwestern half of the study area, is catagorized as the Oak-Hickory Forest Section, Eastern Deciduous Forest Province, Hot Continental Division, Humid Temperate Domain by Bailey. Vegetationally, this ecoregion is dominated by tall, thick-canopied, broadleaf deciduous trees. The shedding of the leaves in winter allows for the establishment of small trees, shrubs, and forbes in early spring. Common forest species include upland oaks, beech, hickory, walnut, maple, basswood, elm, and ash. In poorly drained communities, alder, willow, ash, and elm dominate. The natural vegetation in this region remains fairly intact as agricultural land use is not practical.

Physiography and Landforms

Ecoregion areas can also be defined in terms of landforms and physical structure. Physiographically, the Southern Forest Flood Plain Ecoregion is also known in our study area as the Lower Mississippi Alluvial Plain. This plain is characterized as a flat depositional plain as it occurs directly adjacent to the Mississippi River. The flood plain becomes irregular and gently

sloping as it moves westward across Crowley's Ridge, an ancient river escarpment. Here on the historic outwash plain, wind blown alluvial material forms small ridges, dunes, and pothole-like depressions. Old river terrraces and channel cuts are also prevalent. With the exception of small tracks, this entire area has been cleared and altered for agricultural use.

In sharp contrast, the Oak-Hickory Ecoregion, known physiographically as the Ozark-Quachita Highlands, is described as open hills with 50-75% of the slope on the uplands. Elevations in these highlands can range from 300 to 800 feet above sea level. Rolling hills and confined streams and floodplains are typical. Because of this relief, agricultural practices, mostly grazing, have been confined to the lowlands valleys. Timber harvesting can be observed in the region.

Hydrology

The major hydrologic feature of the Mississippi Alluvial Plain is surface water drainage. The St. Francis River and Black River are direct tributaries to the Mississippi River. Historically, these tributaries were slow moving, widely meandering channels with extensive floodplains and backswamps. However, a series of state and federal flood control and drainage programs beginning as early as 1850 have transformed them into a series of straight-lined, leveed ditches. Overland flooding and consequent ground water and soil recharge have been greatly reduced by this action. Virtually no first or second order streams remain except as small drainage or field ditches.

In contrast, the Ozark Quachita Highlands are hydrologically diverse. The Current River was designated as the first river of the National Scenic Waterways System and as such as been left practically undisturbed. The Little Black River and the upper sections of the Black River are faster moving than on the lowland although still meandering. Smaller streams and tributaries are abundant and drain the surface areas of the surrounding hills in a classic dendridic pattern.

Because of the relief and change is geologic structure, these highlands also have an extremely active ground water system; Big Springs, located in the extreme northwest corner of the study area, is an important example. The spring is said to be the largest in North America with a maximum peak flow of over 840 million gallons daily. It directly feeds the Current River. Other smaller springs and ground water activity are common in the surrounding hills.

Climate

The climate of the entire study area is classified by Koppin's Scheme as humid subtropical. The winters are absent of extreme

cold and the summers are humid. However, once again the study area is just south of a transition zone into a moist continental climate where winters are more severe. Consequently this area of southeastern Missouri can experience frequent freezing temperatures in the winter.

More specific climatological data collected at the NOAA station in Dexter, Missouri reveals that the average daily temperature range is from 37°F to 78°F. The average low is 28°F in the winter and average high is 90°F in the summer. Annual precipitation averages around 48 inches. Approximately half of this rain falls during the growing season of April through September. (Butler)

Soils

Soils within the mapping area fall into the broad taxonomic groups of Mollisols, Inceptisols, and Ultisols. These Mollisols which are characterized by thick, black surface horizons are formed under moist conditions generally found on the flat floodplain directly adjacent to the Mississippi River. These are amoung the most fertile soils in the world. The Inceptisols are found on the irregular plain of the old floodplain. This alluvial or loess material is very fine and forms where sedementation is no longer active. Soil water is available for more than three consecutive months through the growing season. The Ultisols are restricted to the highlands of the western map area. The soils form under forest vegetation in climates with seasonally alternating water-surplus, water-deficient regimes. These soils are low in plant nutrients.

More specific soil information was made available only for Stoddard County. This area contains numerous soils that are considered hydric by the SCS. The Sharkey-Gideon association, Commerce-Roellen-Mhoon association, Crowley-Calhoun-Foley association, Falaya-Zachary association, Crowley-Calhoun-Anagon association, and Covent association represent poorly drained soils on floodplains or teraces. (Butler)

WETLAND COMMUNITIES

Wetlands and deepwater habitats within the area fall within the riverine, lacustrine, and palustrine systems. Deepwater habitats are areas which are permanently flooded and are characterized by open water on the aerial photography. These habitats are present in the riverine and lacustrine systems, while wetland habitats are present in all systems. (See table 1)

The riverine system includes upper perennial permanent rivers (R3UB), lower perennial permanent rivers (R2UB), and intermittent drainages (R4SB). U.S.G.S. topographic information is used to distinguish the classification between permanent and intermittent unless other collateral data such as field siting exists.

Within the lower perennial system (R2), the unconsolidated bottom (UB) and unconsolidated shore (US) classes are found. Unconsolidated bottom denotes permanent or semipermanent water occurring within the channels. The unconsolidated shore (US) classification denotes the unvegetated flats and sandbars that are flooded and subsequently exposed during the growing season each year. Canals and rivers are also excavated to improve drainage (x).

The major riverine wetlands within the mapping area are part of the Mississippi River drainage system. The tributaries, St. Francis River, Black River, and the Castor River are, for the most part, lower perennial permanent streams, but are reduced to an intermittent flow in some sections. These rivers are controlled by levees and ditching (R2UBHx, R4SBFx).

Another major permanent river of the study area is the Current River. This river is directly fed by large springs and exhibits upper perennial characteristics at these sites (R3UBH). The Current resumes more of a lower perennial status as it flows southward towards the Arkansas border (R2UBH). Because of its pristine condition, wide sand bars and flats both seasonally and temporarily flooded are well developed along the channel banks (R2USC, R2USA).

Intermittent drainages are considered to have flow throughout the growing season and are classified as semipermanently flooded (R4SBF). These are common in the highlands of the western half of the mapping area as numerous small creeks drain the lansdcape. These riverine systems can also denote excavated irrigation and drainage ditches that predominate in the east. These are entrenched and straightened, restricting flooding and overland flow on surrounding terrain. In instances of streamside vegetation which does sustain flooding on a yearly basis, the stream channel will be mapped as a palustrine wetland.

The lacustrine system classifies water bodies greater than 20 acres and includes the permanent limnetic zone with water depths greater than six feet (L1UB), and the shallower littoral zone which is exposed to some degree on a yearly basis (L2UB, L2US). Aquatic bed vegetation may occur in either zone (L1AB, L2AB).

These lacustrine water bodies occur in both natural and man-made conditions. The largest system in the map area is Lake Wappapello, formed by the impoundment of the St. Francis River by the Army Corps of Engineers. This lake is a deep permanent water body of two to three thousand acres (L1UBHh). Other man-made lakes are also found throughout the area formed both by impoundment structures and by by excavating as in the case of levee pits. These water bodies are considered permanent and deep unless other information is available (L1UBHh, L1UBHx).

Mingo National Wildlife Refuge is a natural lacustrine system formed in an abandoned ancient channel of the Mississippi River. The refuge contains a large vegetated shallow lacustrine community called Monopoly Marsn. The area was opended when the dense forest was cut for lumber in the early 1900s. Since then, and encouraged by management tecnniques to favor the growth of waterfowl food plants, this clearing supports large communities of American lotus (Nelumbo sp.) (L2ABG). Other natural lacustrine systems are not widely found and confined mostly to the backwaters and oxbows of tne major floodplains.

Palustrine wetland communities which describe vegetated wetlands and small shallow water bodies provide an abundant and diverse habitat in the mapping area. Both vegetated and unvegetated classes are observed with a wide range of flooding conditions.

Palustrine forested communities (PFO) are woody communities with species over 20 feet in height and mainly associated with river floodplains and backwater swamps or as remnant stands of the bottomland hardwoods that once dominated tne area. The floodplain communities indicative of an intermittently exposed (G) or semipermanent (F) flooding conditions are dominated by bald cypress (Taxodium distichum), to a lesser degree water tupulo (Nyssa aquatica), and willow (Salix sp.). When cypress, a needle leaf deciduous species (PFO2), is mixed with the broadleaf deciduous species (PFO1), the subclass "deciduous" is used (PFO6).

Bottomland hardwood communities are mainly seasonally (C) or temporarily (A) flooded. Tne dominant species associated with the wetter seasonal bottomlands and floodplains are silver maple (Acer saccharinum), green ash (Fraxinus pennsylvanicus), willow, river birch (Betula nigra), overcup oak (Quercus lyrata), sweet gum (Liquidambar styraciflua), and sugarberry (Celtis laevigata) (PFO1C). Diversity is also common in the drier temporarily flooded forests (PFO1A). Species more indicative of this condition are red maple (Acer rubrum), eastern cottonwood (Populus deltoides), nackberry (Celtis occidentalis), and sometimes a mixture of more upland species of walnut (Juglans sp.), hickory (Carya sp.), and several species of oaks (Quercus spp.).

Scrub-shrub communities (PSS), documented by woody species less tnan 20 feet in height, also occur in all flooding conditions and throughout the mapping area. These are found invading in cleared forests and small canals, and naturally along rivers and streams. Semipermanently flooded shrub communities are dominated by buttonbush (Cephalanthus occidentalis), and willow (PSS1F). Seasonal communities are predominantly willow and small saplings of tne species indicative of the seasonal forest such as those listed above (PSS1C). The drier, temporary shrub complexes were comprised of willows and cottonwood especially in distributed areas. In more natural stands, other forested sapplings indicative of temporarily flooded forests were intermixed (PSS1A).

Palustrine emergent wetlands (PEM) are common throughout the region and occur on the recently cleared lowlands, in smaller canals, on river flats and floodplains, and in the depressions formed in the loess plains. Cattail (Typha latifolia) is the predominant species indicative of semipermanently flooded communities (PEMF), and are often found mixed with aquatic species such as duckweed (Lemna minor) (PEM/ABF). Seasonally flooded emergent communities (PEMC) contained species such as lizard's tail (Saururus cernuus), nut sedge (Cyperus sp.), giant cane (Arundinaria gigantea), and rushes (Juncus spp.) These forbes were also indicative understory species for the seasonal forest communities. Emergents portraying temporarily flooded conditions (PEMA) are species such as smartweed (Polygonum sp.), dock (Rumex sp.), sedge (Carex sp.), goldenrod (Solidago sp.), morning glory (Ipomoea hederarea), and stinging nettle (Urtica diocia). These species were often found mixed with scattered seasonal species and showed a great range of tolerance. Emergent wetlands are commonly altered by draining and ditching (d), excavating (x), and impounding (h).

Small unvegetated water bodies less than 20 acrea are identified as intermittently exposed or semipermanently flooded palustrine wetlands (PUBG, PUBF). These are predominately small ponds that are excavated (x) or impounded (h). However, natural ponds are common in the cut off oxbows and old channels of the larger rivers. These may be vegetated by aquatic species later in the growing season (PABG, PABF).

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TABLE 1

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION AND PHYSIOGRAPHIC FEATURES
R2UB	Riverine Lower perennial Unconsolidated bottom	River	Unvegetated: Sand, mud
R2AB	Riverine Lower perennial Aquatic bed	River Canal	Duckweed (Lemna minor) Dock (Rumex sp.)
R3UB	Riverine Upper perennial Unconsolidated bottom	River	Unvegetated: Sand, mud
R4SB	Riverine Intermittent Stream bed	Canal Ditch Creek Stream bed	Unvegetated: Sand, mud
L1UB	Lacustrine Limnetic Unconsolidated bottom	Oxbow Lake Large pit Reservoir	Unvegetated: Sand, mud
L2UB	Lacustrine Littoral Unconsolidated bottom	Lake flat Shallow lake	Unvegetated: Sand, mud
L2AB	Lacustrine Littoral Aquatic bed	Shallow lake	Duckweed (Lemna minor) Pondweed (Potomogeton sp.) American Lotus (Nelumbo sp.)
L2US	Lacustrine Littoral Unconsolidated shore	Lake flat Lake Shore	Unvegetated: Sand, mud

TABLE 1

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION AND PHYSIOGRAPHIC FEATURES
PFO	Palustrine Forested	Swamp bottomland Bottomland forest Tree-lined canal	Cypress (Taxodium distichum) Tupelo (Nyssa aquatica) River Birch (Betula nigra) Willow (Salix spp.) Sweet gum (Liquidambar styraciflua) Silver Maple (Acer saccharinum) Red maple (Acer rubrum) Cottonwood (Populus deltoides) Green ash (Fraxinus spp.) Overcup Oak (Quercus lyrata)
PSS	Palustrine Scrub Shrub	Thicket Swamp Shrub River flat Vegetated canal	Buttonbush (Cephalanthus occidentalis) Willow (Salix spp.)
PEM	Palustrine Emergents	Marsh Meadow Pothole Depression or basin Vegetated canal or ditch	Cattail (Typha latifolia) Bullrushes (Scirpus spp.) Spike rush (Eleocharis spp.) Sedges Dock (Rumex spp.) Smartweed (Polygonum spp.) Rush (Juncus spp.) Goldenrod (Solidago sp.)

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