COLORADO WETLAND INVENTORY
U.S. FISH AND WILDLIFE SERVICE
1:100,000 MAP NARRATIVE REPORT
-LAMAR 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 September 1978, to delineate and classify photo-interpretable wetlands within the eastern five-sevenths of Colorado.

Wetland maps at 1:100,000 scale and wetland overlay maps at 1:24,000 scale are produced at National Wetland Inventory headquarters in St. Petersburg, Florida. Final Colorado wetlands maps are available at U. S. Fish and Wildlife Service's Regional Office located in Denver, Colorado. An integral part of all final wetland maps is the completion of narrative reports for each 1:100,000 quadrangle inventoried. The following narrative report provides both basic and specific data which aids the user in understanding not only the general area of the Limon NW quadrangle but also representative details of its wetland habitat.

MAP PREPARATION

Contractor for this wetland inventory was Colorado Division of Wildlife, 317 West Prospect, P. O. Box 2287, Fort Collins, Colorado 80526. Richard Hopper was the contract officer. Photo-interpretation was done by the subcontractor, Colorado State Forest Service, Foothills Campus, Colorado State University, Fort Collins, Colorado 80523. Photo-interpreters were Thomas Owens, Charles Storrs, and Alexander Kosinski. Preparation of this narrative report was completed by Thomas Owens. Regional Wetland Coordinator was Charles Elliott, U. S. Fish and Wildlife Service, Denver Federal Center, P. O. Box 25486, Denver, Colorado 80225.

Wetland delineation and classification for Lamar NW 1:100,000 quadrangle was done on 1:80,000 black and white aerial photographs taken in May 1974. Photography covered 100 percent of the quadrangle. Wetland classification was done in accordance with Cowardin, et. al., 1979. Specific mapping conventions developed at National Wetland Inventory headquarters were used to assist in photo-interpretation. Field checking was done May 24, 1979.

Map users are cautioned that mapping with aerial photography has limitations. Wetlands are identified and classified through stereoscopic

examination of photography on the basis of tone, texture, pattern, site, size, local ecology, and cultural patterns. Aerial photographs reflect conditions during the year and season they are taken. In addition, the 1:80,000 black and white photography used on this project was photographed for purposes other than wetland mapping. The small scale precludes delineating very small wetlands (less than 1/4 acre) and narrow linear wetlands (less than 15 feet wide). Black and white emulsion makes distinguishing between classes of vegetation (and nonvegetation) difficult. Some imagery was not photographed during the best season for wetland delineation and classification. If photographed too early or too late in the season, moist (dark) tones are not evident. The photography was four to five years old when it was interpreted and land use changes have occurred.

Any discrepancies noticed regarding wetland omissions, inclusions, or errors should be given to the U. S. Fish and Wildlife Service Regional Wetland Coordinator who is located in Denver, Colorado, and whose address is on the previous page.

Special Mapping Problems

This quadrangle has many small depressions scattered across the plains. There are two types of depressions: wetlands with emergent species and non-wetlands without emergents. Non-wetland depressions without emergents are often dark in tone and conspicuous on the imagery, which is due to slightly more moisture and lusher vegetation than surrounding areas, but have no lighter toned ring. Depressions with wetland species (usually) have a lighter toned ring in them which shows the extent of inundation after rain. Depressions receive water from local summer thunderstorms, are dry most of the time, and are not part of drainage systems. These wetlands are locally important, but are often difficult to see on the imagery, unless flooded after a thunderstorm.

AREA DESCRIPTION

Bailey's Ecoregions

Lamar NW 1:100,000 quadrangle falls into one province in Bailey's Description of the Ecoregions of the United States, 1978, which classifies land into a hierarchal system based upon bioclimatic, geologic, and geomorphic criteria. The province is Great Plains-Shortgrass, Grama-Buffalo Grass Section (3113L) and is characterized by bunched short grasses, with scattered trees.

Hammond's Land-Surface Forms

Lamar NW falls into two Hammond Land-Surface Forms which systematically characterizes United States topography (Ecoregion and Land-Surface Form

Map, 1975). All forms are in the Interior Division (III). The first form is in the Rocky Mountain Piedmont Subdivision (13). Covering 91 percent of the quadrangle are Tablelands of Moderate Relief (III-13B3c) which have 50 to 80 percent of area gently sloping, local relief 300 to 500 feet, and 50 to 75 percent of gentle slope on upland. The southeastern corner in the High Plains Subdivision (14) and Smooth Plains (III-14A2c) are characterized by more than 80 percent of area gently sloping, local relief 100 to 300 feet, and 50 to 75 percent of gentle slope on upland. This form covers 9 percent of the quadrangle.

Hydrologic Mapping Units

Four hydrologic mapping units are found in Lamar NW (Hydrologic Unit Map of Colorado, 1974). Hydrologic units are part of an effort by the United States Geological Survey to provide a series of uniform, Nationally consistent maps which accurately delineate hydrographic boundaries for Federal and State water resource agencies. Units are designated by eight-digit numbers tied to a computer file (Catalog of Information on Water Data) which contains information on water data activities (Langford and Kapinas, 1979). All units are in the Arkansas-Red-White Region (11). 11020008 covers 26 percent in the southwestern corner and 11020012 covers 34 percent in the north and east. 11020011 covers 22 percent in the northeastern corner and 11020009 covers 18 percent in the southeastern corner.

Geography

Lamar NW is a semi-arid quadrangle covered by plains which have level to rolling topography. Elevations are from 4,400 to 6,000 feet and vegetation is short grass prairie with cottonwoods and willows along streams. There are no permanent streams running through this quadrangle.

There are no towns of note in Lamar NW. Agriculture is the major economic activity and is predominately dryland farming and ranching.

Geology

The oldest material in Lamar NW is Cretaceous (70 to 135 million years ago) shale deposited when eastern Colorado was under a sea. Shale covers slightly less than half the quadrangle. A large portion of Lamar NW is covered by Quaternary (present to 3 million years ago) eolian deposits of dune sand, silt, and loess. Scattered areas are covered by Quaternary gravel and alluvium. Several streams have flood plains covered by modern alluvium.

Soils

Soil is an important element of wetlands; it is one criterion used to define wetlands. "The substrate of wetlands is predominately undrained hydric soil" (Cowardin, et. al.). The National Wetland Inventory, in cooperation with the U. S. Soil Conservation Service, is preparing a list

of hydric soils to accompany the Cowardin, et. al., wetland classification system.

Two major wetland soil types are found in Lamar NW: soils associated with drainages and soils associated with flood-irrigated meadows.

Where streams are intermittent, wetland soils are sandy and gravelly, unstable, excessively drained, subject to occasional flooding, and have low water tables. Native vegetation includes cottonwoods and annual forbs (Cipra, et. al., 1978).

Flood-irrigated soils are found where there is a ready supply of water. These soils may not have been wetland soils originally, but since they have been irrigated the water table is less than 3 feet from the surface. These soils are deep, level, range in texture from sandy loam to clay loam, and are often saline. Vegetation includes saltgrass, alkali sacaton, tall grasses, sedges, rushes and cattails in low pockets (Cipra, et. al.).

Climate

Lamar NW's climate is semi-arid and continental, with cool dry winters and warm, relatively dry summers. Forder receives 11.6 inches of precipitation annually, 28 inches of this coming as snow. January's average maximum temperature is 45.3°F, average minimum is 9.8°F. July's average maximum temperature is 91.7°F, average minimum is 58.1°F (Benci and McKee, 1977). The growing season is 160 days (SCS data, 1978).

WETLANDS

Community Description

Lacustrine System

One lake type found within Lamar NW is reservoir (L1OWG) (information in this section comes from field notes taken May 24, 1979). Karval Reservoir is the only reservoir in Lamar NW. Water levels fluctuate as much as 30 feet and the areal extent of the open water changes significantly during the year because of filling in spring with snow melt and drawing down during summer for agricultural irrigation. The exposed shoreline is composed of rocks, gravel, sand, and mud. Reservoirs normally retain some water throughout the year.

Lacustrine Flats (L2FLW) are delineated. These flats have a temporary water regime (they receive water after rainfall) but are greater than 20 acres, so are included in the Lacustrine System. Flats are caused by the causes described for depressions under the Palustrine System.

Riverine System

One stream type is delineated; intermittent stream (R4SBW). This stream type is the most common stream type on the eastern plains where there is no permanent water source to supply moisture. Intermittent streams have a sandy substrate that is very well drained which is often scoured by flash floods. These streams flow after snow melt and after local summer thunderstorms.

Palustrine System

An important palustrine type is flood-irrigated meadow (PEMKC). Flood-irrigated meadows are found along streams and below springs. Ditches were built along the meadows' upper edges to allow water to flow from upper sources and spill out over the meadows. Standing water can be found for short periods early in the growing season; soil remains moist for extended periods through the growing season. Flood-irrigated meadows have not been cultivated and vegetation is active. Meadows are hayed or grazed by cattle. Vegetation includes Juncus arcticus, Eleocharis acicularis (species identification was according to Harrington, 1955; Fasset, 1957; Weber, 1976; Nelson, 1977), along with grasses and forbs. Many flood-irrigated fields are cultivated; these were not delineated.

Scrub/shrub and scrub/shrub-emergent areas are found along streams in this quadrangle (PSSW, PSSY, PSS/EMW, PSS/EMY). The water regime is dependent upon the amount of water flowing in the stream. In the western portion, where water is relatively plentiful, the water regime tends towards the seasonal regime. In the east, where moisture is scarce, water regimes are drier. Shrub species are Salix spp.; understory emergents include Juncus arcticus, Carex spp., Eleocharis acicularis, as well as grasses and forbs.

Forested wetlands (PFOW, PFOY, PFO/EMW, PFO/EMY, PFO/SSW, PFO/SSY) are found throughout the quadrangle along streams. The water regime situation is the same as that of scrub/shrub areas. Tree species include Populus sargentii and Salix spp. Understory species are the same as those mentioned with scrub/shrub-emergent areas.

On the plains numerous areas (PFLW, PEMW) are delineated which are small dugouts or impoundments constructed to supply water to livestock. These flats are dependent upon local precipitation for their water supply and do not receive enough moisture to remain wet year-round. They often have saline soils. Vegetation consists of sparse stands of Distichilis stricta, Sporobolus airoides, forbs, and grasses.

Intermittent depressions are also delineated on the plains (PEMJ) that are the result of: wind deflation or blowouts, solution-subsidence (leaching water removes limestone and subsequent deflation), or differential compaction of Tertiary sediments of the plains (Thornbury, 1965). Delineated depressions are generally a few feet in depth and from one hundred to several hundred feet across. There is not sufficient moisture

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