USER NOTES: LAS CRUCES, NEW MEXICO, NATIONAL WETLANDS INVENTORY MAP

Map Preparation

The wetland classifications that appear on the Las Cruces NWI Base Map are in accordance with Cowardin et al, (1977). The delineations were produced through stereoscope interpretation of 1:110,000-scale color infrared aerial photographs taken in February, 1971, and 1:80,000-scale black-and-white-aerial photographs taken in March, 1977. The delineations were enlarged using a zoom transferscope to overlays of 1:24,000-scale and 1:62,500-scale. These overlays were then transferred to 1:100,000-scale to produce the Base Map.

Aerial photographs were unavailable for the western portion of the Las Cruces area 1:62,500-scale map, the western and southern portion of the Afton area 1:62,500-scale map, and the eastern portions of the White Sands NW, Davies Tank, Newman NW, and Newman SW area 1:24,000-scale maps. These areas are therefore without wetland designations on the Las Cruces NWI Base Map.

Extensive field checks of the delineated wetlands of the Las Cruces NWI Base Map were conducted in June, 1981 to determine the accuracy of the aerial photointerpretation and to provide qualifying descriptions of mapped wetland designations.

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 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 Warren Hagenbuck, Regional Wetlands Coordinator, U. S. Fish and Wildlife Service, Region 2, P.O. Box 1306, Albuquerque, New Mexico, 87103.

Geography

The area covered by the Las Cruces NWI Base Map lies within portions of Dona Ana and Otero Counties, in southcentral New Mexico. Bailey's Ecoregion Classification (1978) identifies the area as Chihuahuan Desert Province. The southeast corner of this map occurs in the Tarbush-Creosote Bush Section (3212), the remaining areas are within the Grama-Tobosa Section (3211).

The most dominant wetland feature is the Rio Grande which drains areas immediately adjacent to it. The river flows in a southeastern direction within the Mesilla Valley, a nearly level to gently sloping floodplain, that varies in width from less than one mile to as much as five miles. It is at an elevation of 3730 feet. The soils are generally deep and well drained unconsolidated Sand and Gravel formed on alluvium on the floodplain and stream terraces (Bulloch and Neher 1980).

In 1916, Elephant Butte Dam was completed on the Rio Grande north of Dona Ana County. It provides irrigation water to Mesilla Valley for the development of intensive farming of crops such as alfalfa, wheat, cotton, onions, and pecans. Irrigation and drainage systems are important wetlands in the area.

The Mesilla Valley is bordered on the west by upland plains 5,000 feet in elevation. This area represents an internally drained basin known as La Mesa, which extends from a point near the city of Las Cruces, sloping gently to the south toward Mexico. These plains are level to gently undulating. The soils range from being shallow to deep. They are well drained and formed on residuum, alluvium, and eolian material (Bulloch and Neher 1980). Livestock grazing represents the most predominant use.

Three mountain ranges rise abruptly along the Mesilla Valley on the east: the San Augustine, Organ, and Franklin Mountains. Northwest of Las Cruces lie the Robledo Mountains. These ranges are rock outcrops associated with colluvium, residuum, alluvium, and eolian material. The topography is gently undulating to extremely steep and the elevation ranges from 4,800-9,012 feet. The soils are well drained and are shallow to deep. Ravines, gullies and arroyos serve as drainage channels for these mountains during the summer rains (Bulloch and Neher 1980).

East of the mountain ranges is a portion of the Tularosa Basin. Its southeast boundary on the Las Cruces Base Map are the Hueco Mountains. The Tularosa Basin represents a multiple drainage in which drainage is local or divided into a number of separate, typically saline playas or dry lakes with independent drainages (Meinzer and Hare 1915). Another such basin occurs as the southern extent of the Jornada del Muerto. This portion drains into a large playa known as Isaac Lake northeast of Dona Ana. These basins have shallow or deep well-drained sandy to gravelly unconsolidated soils. They are formed on alluvium, alluvium modified by wind and eolian materials. The topography is nearly level to gently sloping or undulating (Bulloch and Neher 1980).

Climate

The climate of the area is arid. Fall, winter, and spring are dry seasons. Most precipitation occurs in July and continues through October usually as brief, isolated torrential storms. Average precipitation is 7-9 inches but may be as high as 19 inches in the mountains. The average annual temperature is from 50-65° with recorded extremes of 112°F and -20°F. Snowfall is usually light and infrequent, generally occurring from November through March (Bulloch and Neher 1980).

Wetland Communities

The Rio Grande, irrigation and drainage canals and ditches account for the majority of wetlands in the Mesilla Valley. These are classified as Riverine systems. All water is manipulated for agricultural use. The user of the map will find that Open Water and Intermittent Streambed designations are dependent on such utilization for irrigation purposes.

The Rio Grande is classified as Riverine Lower Perennial Open Water. Its highest channel flow is attained during spring-summer periods when peak water demands occur in the Elephant Butte Irrigation district. During the fall and winter, when irrigation water is not required, the flow is greatly reduced or nonexistent. Within the Mesilla Valley waterfowl use is primarily during the winter but there are also small summer breeding populations of mallards and Mexican-mallard hybrids.

Palustrine Scrub-Shrub are found along the banks of the Rio Grande throughout the river's course in the Mesilla Valley. This thin strip of riparian vegetation can be one foot to six feet wide and was not detected in the photointerpretation. It is usually dominated by either saltcedar (Tamarix chinensis), willow (Salix sp.), or seepwillows (Baccharis glutinosa) shrubs. Water horsetail (Equisetum fluviatile), hardstem bulrush (Scirpus acutus), and common three-square (Scirpus americanus) grow in association, with the latter two rarely occurring as emergents. Occasionally a single large willow, Russian olive (Elaeagnus angustifolius) or cottonwood (Populus fremontii) tree will be found along the banks. Periodic flooding is a prerequisite for seedling establishment for many riparian plant species (Glinski 1977). The manipulation of water levels that prevent the inundation of adjacent floodplains suppress the expansion of this community. Mowing, burning, and spraying in some areas and grazing in others also contribute to keeping the riparian vegetation from developing. Nonetheless, these strips can serve as row cover for certain wildlife and fish species.

Drainage or irrigation canals and ditches are either Riverine Lower Perennial Open Water or Riverine Intermittent Streambed. The bottoms are composed of either Sand or Mud. These excavated systems should have the Artificial modifier added to their designations. The waterways used for irrigation, to bring water to crops, are well maintained for the efficient flow of water. Banks are often mowed, burned or sprayed and emergents are not established. Consequently these irrigation systems are of little value to fish or wildlife. The canals and ditches that are used for drainage to remove excess water from crops, on the other hand, have emergent cattail (Typha domingensis) stands that are well established. The banks have dense growths of shrubs, primarily willows, seepwillow, saltcedar, and wolfberry (Lycium sp.). The existence of extensive growths of persistent emergents (i.e. cattails), by definition takes many drainage ditches and canals out of the Riverine and places them into the Palustrine Emergent or Scrub Shrub wetland systems.

Palustrine Forested/Scrub Shrub wetlands are found in isolated patches throughout the Mesilla Valley. They are usually just outside the flood control levees that parallel the river. These are probably remnants of the riparian gallery community that are found along the Rio Grande in areas that have less agricultural or urban development. Their existence in this intensively farmed region provides islands of suitable roosting and nesting habitat for black-crowned night herons (Nycticorax nycticorax), snowy egrets (Leucophoyx thula), Gambel's quail (Lophortyx gambelii), mourning doves (Zenaidura macroura), western kingbirds (Tyrannus verticalis), and numerous other passerines. The trees are usually cottonwoods. Screwbean mesquite (Prosopis pubescens), saltcedar, willow, and seepwillow comprise the dense understory. The substrate is saturated by rains and where openings exist rushes (Juncus sp.) can be found.

Riverine Intermittent Streambeds occur as dry drainages of Bedrock and Boulders forming steep gullies and ravines through the mountains and ridges, and as arroyos of Sandy substrate through alluvial fans and basin floors. These can be subjected to flash floods during the summer rains, and water availability is very brief. Characteristic vegetation associated with these gullies and ravines is comprised of gray oak (Quercus grisea), hackberry (Celtis laevigata), Apache plume (Fallugia paradoxa), skunkbush sumac (Rhus trilobata), velvet ash (Fraxinus velutina), seepwillow and at upper elevations, ponderosa pine (Pinus ponderosa). At lower elevations, through bajadas and on basin floors, the vegetation associated with arroyos is characterized by four-winged saltbush (Atriplex canascens), mesquite (Prosopis glandulosa), whitethorn (Acacia constricta) and desert willow (Chilopsis linearis).

The desert basins drain into playas which can very in size. The Palustrine Flat is a playa less than 20 ha., larger ones are classified as Lacustrine Littoral Flats. These playas represent Type 9 wetlands, Inland Saline Flats (Shaw and Fredine 1971). The salts are derived from weathering and leaching of rock material or may be dissolved from saline deposits. The duration of standing water is variable and depends on the playa size and the amount of water. During periods of standing water, migratory waterfowl and shorebirds utilize these wetlands. The vegetation associated with these playas typically follows a successional pattern as soil moisture conditions change. Cockleburs (Xanthium strumarium) which are associated with saturated soil conditions become well established but eventually give way to more drought resistant salt tolerant plants such as saltgrass (Distichlis stricta), as water stress increases.

Smaller Palustrine Flats, either as small playas or livestock tanks also occur in the Tularosa, Jornada del Muerto and La Mesa basins. They are usually unvegetated and are only intermittently flooded with water of temporary duration and represent Type 9 wetlands, Inland Saline Flats (Shaw and Fredine 1971). Some of these have been designated as Palustrine Open Water on the Las Cruces Area Map but unless the surface water is maintained by a windmill or other pumping device, they should be classified as Palustrine Flat.

Loss and Vulnerability

Riparian gallery forests have been essentially eliminated from the section of the Rio Grande passing through the Mesilla Valley. Flood control measures and land use practices such as grazing and mowing, on adjacent floodplains effectively prevent their reestablishment.

NWI Code	Description	Common Name	Circular 39 Type	Representative Plant Species or Physiographic Characteristics
R4SB	Riverine Intermittent Streambed	arroyo, ditch, canal	--	Unvegetated, Mud to Sand bottom
R2OW	Riverine Lower Perennial Open Water	river, ditch, canal	--	Unvegetated, Mud to Sand bottom
POW	Palustrine Open Water	stock tank	5,9	Unvegetated, Mud to Sand bottom
PFL	Palustrine Flat	stock tank, playas	9	Unvegetated, Mud to Sand bottom
PEM	Palustrine Emergent	ditch, canal	--	Cattail (Typha sp.), hardstem bulrush (Scirpus acutus), common three square (Scirpus americana)
PSS	Palustrine Scrub Shrub	riparian strip, or patch	--	Screwbean mesquite (Prosopis pubescen saltcedar (Tamarix chinensis), willow (Salix sp.), seepwillow (Baccharis glutinosa), wolfberry (Lycium sp.)
PFO	Palustrine Forested	riparian strip, patch, or bosque	--	Cottonwood (Populus fremontii), Russian olive (Elaeagnus angustifolia saltcedar (Tamarix chinensis)
L2FL	Lacustrine Littoral Flat	playa, dry lake	9	Sand bottom. Cockleburs (Xanthium strumarium), saltgrass (Distichlis spicata).

BIBLIOGRAPHY

The purpose of this report is to provide general information about wetland classifications found within the area covered by the Base Map. There has been no attempt to describe all wetlands occurring in the area nor provide complete faunal and floral lists of those wetlands discussed. The references listed below refer to literature cited in the text of this report as well as sources of additional information.

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