

(Socorro NE)

USER NOTES: BELEN, NEW MEXICO NATIONAL WETLANDS INVENTORY MAP

Map Preparation

The wetland classifications that appear on the Belen National Wetlands Inventory (NWI) Base Map are in accordance with Cowardin et al. (1977). The delineations were produced through stereoscopic interpretation of 1:80,000-scale black-and-white aerial photographs taken from 1975 through 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.

Field checks of the delineated wetlands of the Belen NWI Base Map were conducted in July, 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 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 Belen NWI Base Map is located in central New Mexico within portions of Tarrant, Valencia, Bernalillo and Socorro counties. Bailey's Ecoregion Classification (1978) identifies it as Colorado Plateau Province, Grama-Galleta Steppe and Juniper-Pinyon Woodland Mosaic (3132P). This was mislabeled on the Base Map as 3142P and should be corrected.

At an elevation of 4800 feet above mean sea level, the Rio Grande runs south through the center of the western half of the area covered by the Base Map. Its nearly level floodplain is intensively developed for agricultural and residential use. It is a densely populated area compared to some southern portions of the river. The majority of crop lands are in alfalfa production or used as pasturage for livestock. Drainage and irrigation canals and ditches along with river oxbows and some pastures provide important wetlands to this area. The soils are derived from alluvial material and are typically deep, well drained and loamy (Pease 1975).

West of the Rio Grande, the Llano de Albuquerque mesa rises 400-450 feet above the floodplain. Its margins are cut by steep-walled arroyos. The soils are well drained and have loamy to sandy surface layers over layers high in lime. The Rio Puerco Valley is west of the mesa. It is a broad flat valley with the Rio Puerco, an intermittent stream running through it, creating an arroyo that can be 40 feet or more in depth. The soils are well-drained, saline and alkaline that are loamy or clayey throughout. The vegetation in this area consists of dropseeds (Sporobolus sp.),

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black grama (Boutelous eriopoda), galleta (Hilaria jamesii), Dalea sp., broom snakeweed (Xanthocephalum sarothrae), four-winged saltbush (Atriplex canescens), sand sagebrush (Artemisia filifolia), scattered widely spaced Juniper (Juniperus sp.), and on disturbed sites mesquite (Prosopis glandulosa) (Pease 1975).

East of the Rio Grande Valley upland plains consisting of alluvial fans extend toward the Manzano Mountains. These plains are undulating to gently undulating. The vegetation and soils are similar to that on the western side of the valley (Pease 1975). Livestock grazing represents the primary use in the area. Occasional stock tanks occur near the base of the Manzano Mountains representing the only Open Water sites on the plain.

The Manzano Mountains have elevations of 6000 to 8500 feet above mean sea level. They are steep sided on their western face, comprised of granite, igneous rocks, and metamorphic schists, gneiss and quartzite. The soils are formed by alluvial, colluvial, and residuum material. The soils are primarily shallow, coarse-textured and rocky, ranging from neutral to strongly alkaline (Bourlier et al. 1980). The Manzanos support vegetation consisting primarily of Douglas-fir (Pseudotsuga menziesii), ponderosa pine (Pinus ponderosa), white fir (Abies concolor), Gambel oak (Quercus gambelii), and alpine fir (Abies lasiocarpa). The foothills region on the eastern slopes are primarily juniper-pinyon (Pinus edulis) woodlands.

The eastern third of the area covered by the Base Map is known as the Estancia Valley, a relatively flat intermontane basin. Elevations range from 6000 to about 7500 feet. Livestock grazing dry-land and ground-water irrigation farming are the predominant uses. Stock tanks and irrigation ponds dot the valley, and saline playa lakes, the largest being Laguna del Perro, occur on the eastern edge of the area.

#### Climate (Bourlier et al. 1970; Pease 1978)

The climate is arid continental. Average annual precipitation in the basin, mesa, and floodplain ranges from 7 to 10 inches. In the Manzano Mountains and adjacent foothills the average annual precipitation is from 10-14 inches per year. It occurs primarily as brief, isolated summer thundershowers. Winter precipitation is in the form of snow which averages about 20 inches per year in the Estancia Basin and more than 6 feet in the Manzano Mountains. Winters are usually cold and clear while the summers are hot, averaging about 90°F.

#### Wetland Communities

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

The Rio Grande is classified as Riverine Lower Perennial Open Water. Its highest channel flow is attained during spring-summer periods. The bottom is unconsolidated Sand and Mud and the water is usually turbid. The river provides an important wintering site for a variety of species of migratory fowl.

Palustrine Forested/Scrub Shrub are bosques. These riparian forests of cottonwoods (Populus fremontii), Russian olive (Elaeagnus angustifolia), and saltcedar (Tamarix chinensis) are found along the Rio Grande. Their preservation reflects, in part, their value as recreational areas. They also provide important roosting and nesting habitat for black-crowned night herons (Nycticorax nycticorax), snowy egrets (Leucophox thula), Gambel's quail (Lophortyx gambelii), hummingbirds (Trochilidae), mourning doves (Zenaidura macroura), western kingbirds (Tyrannus verticalis), and numerous other passerines. Many migratory species use these bosques in this important north-south migration corridor.

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 lesser value to fish or wildlife. The canals and ditches that are used for drainage, to remove excess water from crops, on the other hand, may have emergent cattail (Typha sp.) stands that become well established. In some channels, growths of parrot-feather (Myriophyllum brasiliense) will form a blanket over the water. The banks may have dense growths of shrubs such as willows (Salix sp.), seepwillow (Baccharis sp.), saltcedar, wolfberry (Lycium sp.), and Russian olive, or may be dominated by herbaceous cover of rabbitsfoot grass (Polypogon monosepelensis), horsetail (Equisetum sp.) and sweet clover (Melilotus alba). 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 on Scrub Shrub wetland systems.

Within the Isleta Indian Reservation, Palustrine Emergent or Scrub Shrub wetlands comprise a mosaic of different wetland types. Cottonwoods and Russian olive trees grow around ponds that are rimmed with cattails (Typha domingensis, T. latifolia), and hardstem bulrush (Scirpus acutus). The water may support Aquatic Beds of pondweed (Potamogeton sp.) and provide valuable habitat for resident waterfowl and other marsh-dwelling birds. These wetlands represent Type 10 wetlands, Inland Saline Marshes (Shaw and Fredine 1971). Flooded pastures are also common in the Reservation; they are dominated by common three-square (Scirpus americanus), rushes (Juncus sp.), spikerushes (Eleocharis sp.), saltgrass (Distichlis stricta), yerba mansa (Anemopsis californica) and rabbitsfoot grass. Livestock use appears to be minimal, the pastures left fairly undisturbed. Along road side ditches, growths of shrubs that are often inundated by water occur in the area. These are comprised of willow, saltcedar, Russian olive, and Phragmites sp., and may provide important areas for wildlife cover.

Riverine Intermittent Streambeds occur as arroyos among the hills and alluvial fans in upland areas. These can be subjected to flash floods during summer rains, but water availability is very brief. The substrate is typically Sand to Gravel. Arroyos near the Rio Grande Valley are

vegetated with characteristic species such as four-winged saltbush, mesquite, Apache plume (Fallugia paradoxa), desert willow (Chilopsis linearis), and rabbitbush (Chrysothamnus nauseosus).

Drainage channels among the Manzano Mountains are labeled as Riverine Intermittent Streambed. The substrate varies from Mud to Cobble-Gravel. They are narrow streambeds with associated vegetation following an elevational gradient. These include juniper, ponderosa pine, Douglas-fir, subalpine fir (Abies lasiocarpa), quaking aspen (Populus tremuloides), Rocky Mountain maple (Acer glabrum), and willow.

Springs are found among the eastern foothills of the Manzano Mountains. Their persistence is dependent on the level of the water table. The waters support Aquatic Beds of Chara or watercress (Rorippa nasturtium-aquaticum), the margins vegetated by softstem bulrush (Scirpus validus), common three-square, spikerushes, rushes, willows, cottonwoods, and skunkbush sumac (Rhus trilobata). These small wetlands are labeled as Palustrine Emergent of Scrub Shrub wetlands depending on the extent of woody growth. They may provide limited habitat for marsh wildlife including the sora rail (Porzana carolina), red-winged (Agelaius phoeniceus) and yellow-headed (Xanthocephalus xanthocephalus) blackbirds.

The Estancia Valley is dotted by stock tanks or irrigation farm ponds. These are Palustrine Open Water and Palustrine Flat wetlands. Wheat and alfalfa are important crops in the area and cattle grazing constitutes an important use. Once an important dryland agricultural region, many farms now irrigate with ground-water. Most of the Palustrine wetlands surveyed were dry and the impoundments no longer in use. These sites were typically unvegetated or vegetated with upland species, bottoms were usually composed of Sand.

In the extreme eastern portion of the area covered by the Base Map, large saline playa lakes occur and are labeled as Lacustrine Littoral Flat. These are surrounded by high mounds of eolian material that border the lake. Surface runoff from the surrounding upland areas drain into these playas. Their value to wildlife may be negligible due to the extreme saline conditions. No wetland vegetation could be found in or around the playas.

#### Loss and Vulnerability

Many small ponds and stock tanks that were once fairly common in the Estancia Valley no longer occur there. Ground water irrigation farming has replaced dryland methods on many farms. Continued ground water depletion could prove detrimental to existing wetland areas.

NWI Code	Description	Common Name	Circular 39 Type	Representative Plant Species and Physiographic Features
R2OW	Riverine Lower Perennial Open Water	river, ditch, canal	--	Unvegetated. Sand and Mud bottom
PFO	Palustrine Forested/ Scrub Shrub	bosque	--	Cottonwood ( <u>Populus fremontii</u> ), Russian olive ( <u>Elaeagnus angustifolia</u> ), saltcedar ( <u>Tamarix chinensis</u> ).
R4SB	Riverine Intermittent Streambed	irrigation canals and ditches	--	Unvegetated. Sand to Mud Bottom
PEM	Palustrine Emergent	ditch, canal	--	Cattails ( <u>Typha domingensis</u> and <u>T. latifolia</u> ), hardstem bulrush ( <u>Scirpus acutus</u> ), pondweed ( <u>Potamogeton</u> sp.), common three-square ( <u>Scirpus americanus</u> ), rushes ( <u>Juncus</u> sp.), spikerushes ( <u>Eleocharis</u> sp.), saltgrass ( <u>Distichlis stricta</u> ), yerba mansa ( <u>Anemopsis californica</u> ), rabbitsfoot grass ( <u>Polypogon monosepeliensis</u> ).
R4SB	Riverine Intermittent Streambeds	arroyo, ditch canal gully	--	Unvegetated. Sand, Gravel, and Mud bottom
POW/PFL	Palustrine Open Water Palustrine Flat	stock tank, irrigation farm ponds	5, 9	Unvegetated. Sand and Mud bottoms
L2FL	Lacustrine Littoral Flat	playa, dry lake	9	Unvegetated. Sand and Mud bottoms

## 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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