

USER NOTES: SOCORRO, NEW MEXICO, NATIONAL WETLANDS INVENTORY MAP

Map Preparation

The wetland classifications that appear on the Socorro National Wetlands Inventory (NWI) Base Map are in accordance with Cowardin et al. (1977). The delineations were produced through stereoscopic interpretation of 1:120,000-scale black-and-white aerial photographs taken in 1975. 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 Round Top, Gran Quivira, Turkey Ridge NE, and Cat Mesa area 1:24,000-scale maps, and the western portions of Mesa Draw, Bigbee Draw, Turkey Ridge, and Turkey Ridge SW area of 1:24,000-scale maps. These areas are, therefore, without wetland designations on the Socorro NWI Base Map.

Limited field checks of the delineated wetlands of the Socorro 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 Socorro NWI Base Map is located in central New Mexico. It lies within portions of Socorro and Torrance counties. Bailey's Ecoregion Classification (1978) identifies the area as Colorado Plateau Province, Grama-Galleta Steppe and Juniper-Pinyon Woodland Mosaic Section (3132P). This was mislabeled on the Base Map as 3142P and should be corrected.

The most dominant wetland feature is the Rio Grande which drains adjacent upland areas. The river flows in a southern direction within its nearly level flood plain at an elevation of approximately 4600 feet above mean sea level. The soils are generally deep and well-drained, unconsolidated sand and gravel formed in alluvium on the flood plain and stream terraces. (Pease 1970).

Upland features, east and west of the Rio Grande vary from deeply eroded mesas forming a network of ravines, gullies and narrow ridge tops to nearly level grassland plains at the base of hills and mountains. The elevation of these upland areas ranges from about 5000-7530 feet above mean sea level.

As the ecoregion classification implies, the vegetation can vary. The rolling hills on either side of the Rio Grande are dominated by creosote bush (Larrea tridentata). Many arroyos occur in this area, running from the mesas to the river. Grasslands southeast of Socorro on the Jornada Plains are dominated by short and middle grasses, primarily galleta (Hilaria jamesii), black grama (Boutelous eriopoda), blue grama (Bouteloua gracilis), and fluff grass (Erioneuron pulchellum) (Connor and Price 1981). In disturbed areas these grasses give way to snakeweed (Xanthocephalum sarothrae), yucca (Yucca sp.), and cholla (Opuntia sp.). Pinyon-juniper woodlands occur on ridges, hills and mountains throughout the area covered by the Base Map. The trees are widely scattered and an occasional one-seed juniper (Juniperus monosperma) can be found on north facing slopes and in drainages as low as 5000 feet above mean sea level. Most of these uplands are managed for livestock grazing. Springs and earthen stock tanks are widely scattered and serve as watering facilities for the cattle that roam these rangelands.

Climate

The climate of the area is continental, ranging from arid along the Rio Grande Valley to semi-arid in the uplands. Precipitation occurs primarily during the summer from June through September, usually as brief isolated thunderstorms. The average precipitation is from 8-14 inches. The summers are hot and winters are cool and dry. Average summer temperatures are in the 90°F range while winter temperatures are usually in the 30°F range (Pease 1970).

Wetland Communities

The Rio Grande, irrigation and drainage canals and ditches account for the majority of wetlands on the Rio Grande flood plain. Most of the water is manipulated for agricultural use. The user of the map will find that Open Water and Intermittent Streambed designations are dependent on the utilization of water 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 surrounding agricultural areas. During the fall and winter, the river's entire flow is diverted at San Acacia into the Rio Grande Conveyance Channel which is used to transport irrigation water. The conveyance channel should be labeled Riverine Open Water since it flows throughout the year.

The riparian community along the Rio Grande is extensive along this portion of the river. It is labeled as Palustrine Forested or Scrub Shrub wetlands and is dominated by cottonwoods (Populus fremontii), Russian olive (Elaeagnus angustifolia), and to a lesser amount by saltcedar (Tamarix chinensis) and willow (Salix sp.).

La Joya and Bernardo Game Refuges are located north of Socorro and straddle the Rio Grande. They consist of riparian woodlands and cultivated fields, as well as some artificial impoundments where water levels are manipulated

for waterfowl and shorebirds that winter in the area. Palustrine Emergent wetlands are impoundments having water throughout the year. They support plants such as hardstem bulrush (Scirpus acutus), Olney three-square (Scirpus olneyii), spikerushes (Eleocharis sp.), rushes (Juncus sp.), and cattails (Typha sp.). These areas provide habitat for breeding populations of red-winged blackbirds (Agelaius phoeniceus), American coots (Fulica americana), Gambel's quail (Lophortyx gambelii), mourning doves (Zenaidura macroura), and numerous species of passerines. These impoundments correspond to Type 10-wetlands Inland Saline Marshes (Shaw and Fredine 1971).

Palustrine Flats and Lacustrine Littoral Flats are similar in appearance except for size. Flats are found throughout the Refuge and usually have Sand to Mud bottoms. They are impoundments that are filled with water each fall but are later drained in the spring. After drawdown, cockleburs (Xanthium strumarium) or other annuals become established on the Flats. Saltgrass (Distichlis stricta), rabbitsfoot grass (Polypogon monsepehliensis), squirrel-tail (Sitanion hystrix) and spikerushes rim the margins.

Riverine Intermittent Streambeds occur as arroyos among the rolling hills adjacent to the Rio Grande Flood plain. These can be subjected to flash floods during the summer rains, and water availability is very brief. Arroyos are vegetated with characteristic species that are sometimes referred to as pseudo-riparian (Connor and Price, 1981), they include four-winged saltbush (Atriplex canescens), Apache plume (Fallugia paradoxa), mesquite (Prosopis glandulosa), desert willow (Chilopsis linearis), snakeweed, and at higher elevations skunkbush sumac (Rhus trilobata) may be present. This community merges into the riparian forest along the Rio Grande.

The Rio Puerco and Rio Salado are Riverine Intermittent Streambeds that have surface flows during the summers' heavy rains. The substrate is Sand and supports pure stands of saltcedar.

Ravines and gullies at higher elevations are also Riverine Intermittent Streambed. The substrate ranges from Cobble-Gravel to Bedrock-Boulder. Surface flows occur only during periods of heavy rainfall and water availability is brief except for pockets of water known as "tenajas" that can be trapped in the streambed. Vegetation associated with these ravines and gullies include gray oak (Quercus grisea), skunkbush sumac, juniper (Juniperus sp.), Apache plume, and algerita (Berberis trifoliolata).

Springs are found throughout the upland areas covered by the Base Map. They are usually seeps but sometimes produce small rivulets; their permanence is dependent on the level of the water table. Around these springs and along their flow are cottonwoods, coyote willow (Salix exigua), rushes, bulrushes, and cattails. Many are not labeled since the vegetation associated with these springs cover a small area and were probably not detected in the photointerpretation. The waters of these springs support growths of filamentous algae, pondweed (Potamogeton sp.), and Chara, and may be developed for livestock use.

Smaller Palustrine Flats, either as small playas or livestock tanks, also occur in the upland areas. They are usually unvegetated and are only intermittently flooded with water of temporary duration. Some of these have been designated as Palustrine Open Water on the Socorro Area Base Map, but unless the surface water is maintained by a natural spring, windmill or other pumping device, they should be classified as Palustrine Flat.

Loss and Vulnerability

Past flood control and irrigation storage measures, such as channelization and damming of the Rio Grande, have reduced the amount of area suitable for wildlife along the river. Existing wetland sites have thus become more valuable and efforts should be encouraged for their conservation and improvements to enhance their value to wildlife.

Representative Plant Species
and
Physiographic Features

Circular
39 Type

Common Name

Description

NWI
Code

R20W	Riverine Lower Perennial Open Water	river, ditch, canal	--	Unvegetated. Sand to Mud bottom
R4SB	Riverine Intermittent Streambeds	arroyo, gully, ditch gulch, canal	--	Unvegetated. Sand to Mud bottom Unvegetated. Substrate can be Sand, Cobble-Gravel to Bedrock-Boulder.
PSS, PF0	Palustrine Scrub Shrub/ Forested	bosque, riparian	--	Cottonwood (<u>Populus fremontii</u>), Russian olive (<u>Elaeagnus angustifolia</u>), saltcedar (<u>Tamarix chinensis</u>), willow (<u>Salix</u> sp.).
PEM	Palustrine Emergent	marsh impoundments	10	Hardstem bulrush (<u>Scirpus acutus</u>), Olney three-square (<u>Scirpus olneyii</u>), spikerush (<u>Eleocharis</u> sp.), cattail (<u>Typha</u> sp.).
		springs	5	Cottonwood, coyote willow (<u>Salix exigua</u>), rushes (<u>Juncus</u> sp.), bulrushes, cattails, filamentous algae, <u>Chara</u> , pondweed (<u>Potamogeton</u> sp.).
PFL	Palustrine Flat	stock tank, playas, impoundments	9	Unvegetated or Cocklebur (<u>Xanthium strumarium</u>), saltgrass (<u>Distichlis stricta</u>), rabbitsfoot grass (<u>Polypogon monsepele</u>), squirrel-tail (<u>Sitanion hystrix</u>). Sand to Mud bottom.
L2FL	Lacustrine Littoral Flat	playa, dry lake	9	Cocklebur (<u>Xanthium strumarium</u>), saltgrass (<u>Distichlis stricta</u>), rabbitsfoot grass (<u>Polypogon monsepele</u>), squirrel-tail (<u>Sitanion hystrix</u>). Sand to Mud bottom.

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.

- Bailey, R. G. 1978. Description of the ecoregions of the United States. USDA For. Serv. Intermt. Reg., Ogden, UT. 77 p.
- Campbell, C. J. and W. A. Dick-Peddie. 1964. Comparison of phreatophyte communities on the Rio Grande in New Mexico. Ecology 45: 492-502.
- Connor, J. and A. Price. 1981. Inventory of terrestrial wildlife species for the Stallion Planning Unit. Based on methods from the integrated habitat and classification system (IHICS). Bureau of Land Manage. Socorro Dist., Socorro, NM. 206 p.
- Cowardin, L. M., V. Carter, F. C. Golet, and E. T. LaRoe. 1977. Classification of wetlands and deepwater habitats of the United States (an operational draft). USDI Fish and Wildl. Serv., Wash., D. C. 100 p.
- Follansbee, R. and H. J. Dean. 1915. Water resources of the Rio Grande Basin 1888-1913, including surface water supply of western Gulf of Mexico Basins, 1913. USDI Geol. Surv. Water-Supply Paper 358. 725 p.
- Hendrickson, J. 1977. Saline habitats and halophytic vegetation of the Chihuahuan Desert Region. Pages 289-314 in R. J. Wauer and D. H. Riskind (eds.). Transactions of the Symposium on the Biological Resources of the Chihuahuan Desert Region United States and Mexico. USDI Nat. Park Serv. Trans. and Proc. Ser. No. 3. 658 p.
- Hubbard, J. P. 1978. Revised check-list of the birds of New Mexico. New Mexico Ornithol. Soc. Publ. No. 6. McLeod Printing Company, Albuquerque, NM. 110 p.
- Hubbard, J. P., M. C. Conway, H. Campbell, G. Schmitt, and M. D. Hatch. 1979. Handbook of species endangered in New Mexico. New Mexico Dept. of Game and Fish, Santa Fe, NM. 187 p.
- Johnson, R. R. and D.A. Jones (eds.). 1977. Importance, preservation and management of riparian habitat: A symposium. USDA For. Serv. Rocky Mtn. Forest and Range Exp. Sta. Gen. Tech. Rep. RM-43. 217 p.
- Pease, D. S. 1975. Soil survey of Valencia County, New Mexico, eastern part. USDA Soil Conserv. Serv. 121 p.
- Shaw, S. P. and C. G. Fredine. 1971. Wetlands of the United States, their extent and their value to waterfowl and other wildlife. U. S. Fish and Wildl. Serv. Circ. 39. 67 p.
- U. S. Bureau of Reclamation. 1977. Operation and maintenance program for the Rio Grande, Velarde to Caballo Dam, Rio Grande and Middle Rio Grande Projects, New Mexico. Final Environ. Statement. Amarillo, TX. Vol. 1. 398 p.

U. S. Fish and Wildlife Service. 1954. Wetlands inventory - New Mexico.
Off. River Basin Studies, Region 2. Fieldwork and Rep. 16 p.