

## USER NOTES: HATCH, NEW MEXICO, NATIONAL WETLANDS INVENTORY MAP

### Map Preparation

The wetland classifications that appear on the Hatch National Wetlands Inventory (NWI) Base Map are in accordance with Cowardin et al. (1977). The delineations were produced through stereoscopic interpretation of 1:110,000-scale color infrared aerial photographs taken in 1974 and 1976. 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 northern portion of the Skute Stone Arroyo and Caballo area 1:24,000-scale maps. These areas are therefore without wetland designations on the Hatch NWI Base Map.

Field checks of the delineated wetlands of the Hatch NWI Base Map were conducted in June and 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 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 Hatch NWI Base Map is located in southwestern New Mexico within Grant, Sierra, Luna, and Dona Ana Counties. The Mimbres Mountains lie in the northwestern portion of the mapped area. They represent the southern extent of the north-south oriented Black Mountain Range. Bailey's Ecoregion Classification (1978), identifies the area as Upper Gila Mountains Forest Province (3120M), however, this was mislabeled on the Hatch NWI Base Map as 3130M. The Black Range consists of steep foothills and mountains of igneous and fault-block origin. Elevations range from 4500 to 10,000 feet. Rock outcrops are common; information on soils of this area is distinctly lacking but generally the soils are rocky, formed on colluvium, residuum, and alluvial material (Freeman and Dick-Peddie 1970).

The vegetation typically follows an elevational gradient with north-facing slopes changing in representative species at slightly lower elevations than slopes of other exposures. From about 4500-7000 feet, the vegetation is comprised of mixed grasses and oak-juniper (Quercus grisea-Juniperus monosperma, J. deppeana), and pinyon-juniper (Pinus edulis) woodlands. Above this zone on south-facing slopes, ponderosa pine (Pinus ponderosa) occurs in open forests in association with pinyon and juniper. At 8000

feet Douglas fir (Pseudotsuga menziesii) and aspen (Populus tremuloides) are common. Limber pine (Pinus flexilis) occurs on rockier, drier sites. From about 9000-10,000 feet Engelmann spruce (Picea engelmannii), and corkbark fir (Abies lasiocarpa) appear with limber pine, and bristlecone pines (Pinus aristata) grow on rockier sites (Freeman and Dick-Peddie 1970).

East and south of the Black Range and its foothills, the topography is undulating on alluvial fans and igneous intrusions and extrusions. Nearly parallel, steep-sided canyons run east to west between the Black Range and the Rio Grande in the north central portion of the mapped area. Bailey's Ecoregion Classification identifies the remaining areas on the Base Map as Chihuahuan Desert Province, Grama-Tobosa Section (3211).

Two principle river drainages are represented on the Base Map. The Rio Grande runs south along the western base of the Caballo Mountains, which form the extreme western rim of the Jornada Del Muerto, a multiple internally drained desert basin. The river then turns east through the Rincon Valley north of the the Sierra de Las Uvas, draining all areas directly adjacent to it. Percha Dam creates Caballo Reservoir that provides irrigation water for crops such as cotton, chile, sorghum, and alfalfa that are grown on the nearly level Rio Grande floodplain below the dam.

White Mountain and the western slopes of the Mimbres Mountains are within the Rio Mimbres drainage system. The river is perennial through its course in the area covered by the Base Map and the system is internally drained, its waters eventually recharging the ground water supply. Other internally drained systems are the Uvas Valley west of the Sierra de Las Uvas, the area west of Nutt Mountain, and the Jornada del Muerto.

### Climate

The climate of the area is arid. Fall, winter, and spring are dry seasons. Precipitation occurs mainly in July and continues through September 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<sup>o</sup>F with recorded extremes of 112<sup>o</sup>F and -20<sup>o</sup>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 a number of wetlands south of Percha Dam and through the Rincon Valley. These are classified as Riverine Systems. Water is manipulated for agricultural use and flood control. The user of the map will find that Open Water and Intermittent Streambed designations are dependent on the use of water for irrigation and flood control 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. 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. Consequently these irrigation systems are of less than optimal value to fish or wildlife. The canals and ditches that are used for drainage, to remove excess water from crops, however, often have banks with growths of shrubs, primarily willows (Salix sp.), seepwillow (Baccharis glutinosa), saltcedar (Tamarix chinensis), and wolfberry (Lycium sp.).

Caballo Reservoir is classified as Lacustrine Limnetic Open Water. Its primary purpose is the storage of irrigation water for agricultural use but it also plays an important role in flood control and provides recreation in the form of fishing, waterfowl hunting and boating. Cole et al. (1980), report that bottom sediments are predominantly fine. There is a considerable degree of water fluctuation. The mean depth of Caballo is 6.4m (21 feet), but the mean maximum depth can be as high as 9.0m (29.5 feet), consequently the surface area can also vary. The intermittently exposed shoreline is classified as Lacustrine Littoral Flat and is vegetated by saltgrass (Distichlis stricta), willows, saltcedar, and annuals such as cockleburs (Xanthium strumarium). On the eastern shore of Caballo, a narrow fringing forest of cottonwoods (Populus fremontii) occur. American coots (Fulica americana), double-crested cormorants (Phalacrocorax auritus), snowy egrets (Egretta thula), great blue herons (Ardea herodias), blue-winged teal (Anas discors), and other members of Anatidae and shorebirds, have been most conspicuous in the Littoral zone of Caballo. Both systems represent Type 5 wetlands - Open Freshwater (Shaw and Fredine 1971).

Riparian gallery forests are found along some stretches of the Rio Grande usually where the floodplain is too narrow for the development of croplands. These are labeled as Palustrine Forested/Scrub Shrub depending on the relative amounts of trees and shrubs found at a particular site. Cottonwood trees dominate these communities with Russian olive (Elaeagnus angustifolia) as a subdominant. Shrubs include saltcedar, willow, mesquite (Prosopis glandulosa), four-winged saltbush (Atriplex canescens), cottonwood and Russian olive seedlings. The community provides an important habitat for mourning doves (Zenaidura macroura), and white-winged doves (Zenaidura asiatica).

Several large intermittent streams drain into the Rio Grande in the north central portion of the Base Map, cutting deep canyons and arroyos through their course. These are labeled as Riverine Intermittent Streambed. Typically these riverine systems have Sand substrates at lower elevations near their confluence with the Rio Grande. The Sand substrate slowly grades into larger materials, from Cobble-Gravel to Bedrock-Boulder at upper elevations. The vegetation associated with these intermittent streams also follows an elevational gradient. Plant associations comprised of mesquite, four-winged saltbush, saltcedar, and snakeweed (Xanthocephalum sp.) are common along the arroyos at lower elevations.

Where there is groundwater near the surface or a perennial flow, Fremont cottonwoods, sycamore (Platanus wrightii), ash (Fraxinus velutina), and hackberry (Celtis reticulata) may occur as components of a riparian forest community. On the Black Range at elevations of about 5000 feet, oak (Quercus emoryi or Quercus grisea), juniper, Arizona walnut, Fremont and narrowleaf cottonwood (Populus angustifolia), and hackberry trees are commonly found along streambeds. Higher upslope, at elevations of about 6000 feet, box elder (Acer negundo), pinyon pine (Pinus edulis), ponderosa pine and New Mexican alder (Alnus ablongifolia), form the riparian community. This gradually changes in species composition near 7000 feet where the lower elevation constituents are replaced by Gambel oak (Quercus gambelii), Douglas fir, white fir (Abies concolor), bigtooth maple (Acer granditatum), and quaking aspen (Populus tremuloides) (Freeman and Dick-Peddie 1970).

The Rio Mimbres is designated as Riverine Upper Perennial Open Water. It has a substrate of Cobble-Gravel. Mature trees of narrowleaf cottonwood, Arizona walnut, and sycamore line its shore, creating a riparian community that is labeled as Palustrine Forested wetlands. Land adjacent to the Rio Mimbres is heavily grazed by livestock that have suppressed the regeneration of the riparian forest. The Chihuahuan chub (Gila nigresiens) was thought to be extirpated from the Rio Mimbres, the only river in which the species is known to occur. In 1975, however, it was rediscovered in the Rio Mimbres and its population was estimated at 50 individuals (Hubbard et al. 1979). It is now a federally proposed endangered species.

Stock tanks labeled as Palustrine Open Water or Palustrine Flat, depending on the relative permanence of the standing water. The bottoms are usually Mud to Sand. These wetlands are typically unvegetated and represent Type 9 wetlands - Inland Saline Flats (Shaw and Fredine 1971).

Farm ponds are either Palustrine Open Water or Palustrine Emergent wetlands and represent Type 10 wetlands - Inland Saline Marshes (Shaw and Fredine 1971). Bottoms are Mud or Sand and Chara may form an Aquatic Bed, with bulrushes (Scirpus sp.), cattails (Typha sp.), or rushes or Fremont cottonwoods with shrub growth such as willow (Salix sp.) on their banks.

### Loss and Vulnerability

The understory of the riparian forest along the Rio Mimbres has been virtually eliminated by livestock grazing. Large mature trees grow along the river's course, but regeneration of the gallery forest is practically nonexistent. If current land use practices continue they will lead to the eventual loss of the entire riparian forest along this river.

NWI Code	Description	Common Name	Circular 39 Type	Representative Plant Species and Physiographic Features
R4SB	Riverine Intermittent Streambed	dry stream, dry river arroyo, ditch, canal	--	Unvegetated; Sand, Cobble-Gravel, Bedrock-Boulder
R2OW	Riverine Lower Perennial Open Water	river, ditch, canal	--	Unvegetated; Sand to Mud bottom
R3OW	Riverine Upper Perennial Open Water	river	--	Filamentous algae Cobble-Gravel bottom
L2OW	Lacustrine Littoral Open Water	reservoir, lake	5	Willows ( <u>Salix sp.</u> ), saltcedar ( <u>Tamarix chinensis</u> ) Fine bottom sediments
L1OW	Lacustrine Limnetic Open Water	reservoir, lake	5	Unvegetated; fine bottom sediments
L2FL	Lacustrine Littoral Flat	reservoir, lake, shoreline	5	Saltgrass ( <u>Distichlis stricta</u> ), willow, saltcedar, cocklebur ( <u>Xanthium strumarium</u> ), cottonwoods ( <u>Populus sp.</u> ) Fine bottom sediments
PF,PSS	Palustrine Forested/ Scrub Shrub	riparian forest bosque	--	Cottonwoods, Russian olive ( <u>Elaeagnus angustifolia</u> ), saltcedar, willow
POW,PFL	Palustrine Open Water Palustrine Flat	stock tank	9	Unvegetated; Mud or Sand bottom
PEM	Palustrine Emergent	ditch, canal farm ponds	10	<u>Chara</u> , bulrushes ( <u>Scirpus sp.</u> ), cattails ( <u>Typha sp.</u> ), rushes ( <u>Juncus sp.</u> ), cottonwoods, willow

## 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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