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USER NOTES: AZTEC - SE, NATIONAL WETLANDS INVENTORY MAP

Map Preparation

The wetland classifications that appear on the Aztec SE 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 1974-1977. 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 Valle Grande Peak, La Madera, El Rito, Ojo Caliente, Mendanales, and Lyden area 1:24,000-scale maps. These areas are therefore without wetland designations on the Aztec SE NWI Base Map.

Limited field checks of the delineated wetlands of the Aztec SE 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 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 Aztec SE NWI Base Map is located in north-central New Mexico. Bailey's Ecoregion Classification (1978) identifies the southwestern corner of the Base Map as within the Colorado Plateau Province, Grama-Galleta, and Pinyon-Juniper Mosaic section (3132P). The remaining areas are within the Rocky Mountain Forest Province, Ponderosa Pine-Douglas Fir Section (3113M).

The topography of the area is characterized by a series of sandstone and limestone mesas and steep-sided canyons that have been formed by stream erosion (Darton 1928). The dominant waterways include the Rio Chama, running southeast through the Chama Basin to its confluence with the Rio Grande just north of Espanola, and the Rio Gallina and Rio Puerco both confluent with the Rio Chama. Elevations range from 6,200 feet above mean sea level along the Rio Chama to 9,755 feet along Magote Ridge between Canjilon Creek and El Rito.

The Rio Grande flows southwest through a wide basin of alluvial material that is composed of sand, soft sandstone, and conglomerate material. Its floodplains, and those of the Rio Chama, provide arable acreage

for growing alfalfa and grazing livestock. Both flows are perennial. Abiquiu Dam was built on the Rio Chama as a flood control and water storage structure, and created Abiquiu Reservoir which has become an important recreational area in northern New Mexico.

The San Pedro Mountains are located in the southwestern portion of the Base Map. Elevations range from 8000 to 10,420 feet. It is the northern extent of the Nacimiento uplift, consisting of granite material overlain by limestone and sandstone, and topped by pyroclastic tuffaceous material (Darton 1928).

East of the San Pedros, and drained by the Rio Chama to the north, are the Jemez Mountains formed by successions of igneous activity over sandstone and limestone. They form the northern rim of Valle Caldera, the highest point, Chicoma Mountain, is at an elevation of 11,561 feet.

To the west of the San Pedro Mountains is the southern extent of Arroyo Blanco. It represents the only area covered by the Base Map occurring within the Colorado Plateau Province. Livestock grazing represents the predominant use but overgrazing has caused a shift in the vegetation from a grass dominated rangeland to one consisting primarily of big sagebrush (Artemesia tridentata).

The vegetation over the remaining areas form an elevational gradient from Pinyon-Juniper Woodlands at lower elevations to Ponderosa Pine-Douglas fir Forests on higher, cooler slopes.

### Climate

The climate of the area is semi-arid continental. The average rainfall is about 20 inches but this may be as high as 35 inches in the highest mountain areas. Most of the precipitation falls during the months of May through October with peaks in August. Winter precipitation occurs as snow with as much as 50 inches falling during an average winter. July is the hottest month with an average maximum temperature of 90<sup>0</sup>F and January is the coldest with an average minimum temperature of 2<sup>0</sup>F (Nyhan et al. 1978).

### Wetland Communities

The Riverine system is the most predominant wetland type occurring in the area covered by the Abiquiu NWI Base Map. The Rio Chama, its tributaries, and the Rio Grande are labeled as Riverine Upper Perennial Open Water. Substrata of the Rio Chama and Rio Grande are usually Sand derived from the surrounding sandstone deposits. Beach Bars may occur in river channels, their persistence encouraging growths of vegetation such as spikerushes (Eleocharis sp.), cockleburs (Xanthium strumarium), saltcedar (Tamarix chinensis), cottonwoods (Populus fremontii), and Russian olive (Elaeagnus angustifolia). Once woody shrubs and trees are established, these communities comprise the Palustrine Forest or Scrub-Shrub wetlands that are also found as riparian growths along these rivers. Cattle may graze the banks. Where this is common, saltcedar becomes a dominant species, otherwise, cottonwoods may

be more important in forming the riparian community. These communities provide an important habitat for a number of passerine bird species, and also for mourning doves (Zenaidura macroura), scaled quail (Callipepla squamata), and Gambel's quail (Lophortyx gambelii).

Tributaries of the Rio Chama, except the Rio Puerco, are classified as Riverine Upper Perennial Open Water. Field checks revealed that substrata typically consisted of Cobble-Gravel to Boulders with alluvial deposits. The substratum of the Rio Puerco is similar, but its elevational gradient is less pronounced, and it is classified as Lower Perennial. Waters are typically clear, but streams may be less productive than they could be due to the absence, in many courses, of suitable shade over the water. Cattle graze throughout the area and regeneration of the riparian vegetation is suppressed. Only a few large narrowleaf cottonwoods (Populus angustifolia) can be found along these streams, with some Russian olive and saltcedar in association.

Riverine Intermittent Streambeds are streams and creeks that have surface flows usually during the spring runoff or after heavy localized rains in the summer. Substrates at relatively high elevations usually are composed of Boulders to Cobble-Gravel, but along the Rio Chama and Rio Grande, arroyos may contain primarily Sand and Gravel.

Abiquiu Reservoir on the Rio Chama is labeled as Lacustrine Limnetic Open Water in its deeper zones, and Littoral Open Water or Littoral Flat along the shore. Cole et al. (1980), reported that the average surface area for Abiquiu Reservoir was 1618 ha (3998 acres) and the actual mean depth was 7.2 m (23.6 feet). Water level fluctuations are considerable, the shoreline is usually bare with some occurrence of cockleburs or upland plant species. The reservoir represents a Type 5 wetland - Open Fresh Water (Shaw and Fredine 1971).

Palustrine Open Water and Palustrine Emergent wetlands occur throughout the upland areas and contribute to a mosaic of wetland types along the major rivers. The Open Water designation commonly refers to stock tanks that dot the upland ranges. These are filled through natural runoff, the duration of surface water dependent on the size and depth of the impoundment. They are typically unvegetated, the waters are turbid, and the shores are bare. They represent Type 1 wetlands - Seasonally Flooded Flats (Shaw and Fredine 1971). Other Open Water designations are associated with Palustrine Emergent wetlands. These are usually man made ponds such as those near Regina or beaver impoundments on streams in moist cool mountain areas. Emergent vegetation is commonly comprised of cattails (Typha latifolia and domingensis) and softstem bulrushes (Scirpus validus), with spikerushes (Eleocharis sp.) and rushes (Juncus sp.) growing along the banks at low elevations. At upper elevations the emergent community may also have certain species of sedges (Carex sp.) in their flora. Aquatic Beds of pondweed (Potamogeton sp.), water plantain (Alisma sp.) and smartweed (Polygonum sp.) are usually present in these waters. Although no sampling of invertebrates was undertaken, productivity was assumed to be fairly high since these ponds supported waterfowl broods of American coots, pied-billed grebes (Podilymbus podiceps), and a few teal (Anas sp.). These wetlands represent the Type 5 wetland - Open Fresh Water of Shaw and Fredine (1971).

## Loss and Vulnerability

Cattle grazing along the banks of rivers and streams suppress the regeneration of the native riparian communities which serve as important wildlife habitats. Continued grazing may eventually eliminate this habitat type through replacement by saltcedar.

## 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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NWI Code	Description	Common Name	Circular 39 Type	Characteristic Vegetation and Physiographic Features
R30W	Riverine Upper Perennial Open Water	river	--	Unvegetated. Sand to Mud Cobble-Gravel to Boulders
R20W	Riverine Lower Perennial Open Water	river	--	Unvegetated. Sand
R4SB	Riverine Intermittent Streambed	dry river, dry stream or creek, arroyo	--	Unvegetated. Sand Cobble-Gravel to Boulders
R3BB	Riverine Upper Perennial Beach Bar	river bar		Unvegetated. Sand to Cobble-Gravel
R2BB	Riverine Lower Perennial Beach Bar	river bar		Unvegetated. Sand
PFO/PSS	Palustrine Forested Palustrine Scrub Shrub	bosque, riparian	--	Cottonwoods ( <u>Populus fremontii</u> ), Russian olive ( <u>Elaeagnus angustifolia</u> ), willows ( <u>Salix sp.</u> )
PEM	Palustrine Emergent	river bar	--	Rushes ( <u>Juncus sp.</u> ), spikerushes ( <u>Eleocharis sp.</u> ), cocklebur ( <u>Xanthium strumarium</u> )
		pond	5	Cattails ( <u>Typha sp.</u> ), bulrushes ( <u>Scirpus sp.</u> ), rushes, sedges ( <u>Carex sp.</u> ), spikerushes, ( <u>Eleocharis sp.</u> ), pondweed ( <u>Potamogeton sp.</u> ), water plantain ( <u>Alisma sp.</u> ), smartweed ( <u>Polygonum sp.</u> )
L10W	Lacustrine Limnetic Open Water	reservoir, lake	5	Unvegetated. Fine bottom sediments
L20W	Lacustrine Littoral Open Water	reservoir, lake	5	Unvegetated.
L2FL	Lacustrine Littoral Flat	reservoir or lake shore	1	Unvegetated. Mud bottom