

USER NOTES: OSCURA MOUNTAINS, NEW MEXICO, NATIONAL WETLANDS INVENTORY MAP

Map Preparation

The wetland classifications that appear on the Oscura Mountains 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 February, 1971, and 1975. The delineations were enlarged using a zoom transferscope to overlays of 1:62,500-scale. These overlays were then transferred to 1:100,000-scale to produce the Base Map.

Aerial photographs were unavailable for most of the Broken Back Crater area 1:62,500-scale map. This area is therefore without wetland designations on the Oscura Mountains NWI Base Map.

Limited field checks of the delineated wetlands of the Oscura Mountains NWI Base Map were conducted in July, 1981 to determine the accuracy of the aerial photointerpretations 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 Oscura Mountains NWI Base Map lies in central New Mexico. Bailey's Ecoregion Classification (1978) identifies it as a Chihuahuan Desert Province, Grama-Tobosa Section (3211). Upland vegetation is characterized primarily by creosote bush (Larrea tridentata), four-winged saltbush (Atriplex canescens), and mesquite (Prosopis glandulosa). Dominant grasses are black grama (Bouteloua eriopoda), side oats grama (Bouteloua curtipendula), fluffgrass (Tridens pulchellus), and alkali sacaton (Sporobolus airoides).

The Rio Grande flows south through the northwest corner of the area covered by the Base Map. The majority of the river falling within the boundaries of the Bosque del Apache National Wildlife Refuge (NWR), administered by the U. S. Fish and Wildlife Service. The elevation of the nearly level river floodplain is about 4500 feet above mean sea level. Soils are sandy, deep and well drained, formed in alluvium (Bullock and Neher 1980).

West of the river, the elevation rises rapidly over undulating topography to 6272 feet at the top of the Chupadera Mountains. These mountains are intrusive outcrops associated with alluvium, colluvium, residuum and eolian

material. The soils are well drained and are shallow to deep (Bulloch and Neher 1980). Arroyos serve as drainage channels for these mountains during the summer rains.

East of the Rio Grande lies the Jornada del Muerto Basin. It is a multiple drainage basin in which drainage is local or divided into a number of separate, typically saline playas or dry lakes with independent drainages. The soils are shallow or deep, well drained, unconsolidated sand or mixed gravel. They are formed on alluvium, alluvium modified by the wind, and eolian material. The topography is nearly level to gently sloping undulating (Bulloch and Neher 1980). The Jornada del Muerto is separated from the drainage influence of the Rio Grande by a slight rise in elevation between the two systems and enhanced by river terraces and accumulations of eolian material.

The Oscura Mountains rise abruptly forming the eastern rim of the Jornada del Muerto. The west side of these mountains are steeper than the eastern slopes which dip, then gradually grades higher into the Chupadera Mesa (Follansbee and Dean 1915). These uplands are generally sedimentary in origin overlain by recent accumulations of alluvium, colluvium, residuum and eolian material. The elevations range from an average of about 6500 feet on the Chupadera Mesa to 8640 feet in the Oscura Mountains. The topography is steep to undulating, cut by arroyos which serve as drainage channels.

#### Climate

The climate of the area is arid. Fall, winter, and spring are dry seasons. Predipitation occurs in July and continues through October usually as brief, isolated torrential storms which may cause flash floods and heavy runoff. Average precipitation is 7-9 inches. Snowfall is uncommon and usually very light, seldom remaining on the ground for more than a day or two. The temperatures range from a maximum of 110°F in July to -10°F in January. Mean temperatures range from 39°F in January to 79°F in July (Bulloch and Neher 1980).

#### Wetland Communities

The Rio Grande and its adjacent floodplains provide the source of an important system of wetlands in the area covered by the Oscura Mountains NWI Base Map. All water is manipulated through a series of canals and ditches for flood control, agricultural or wildlife management use. A large part of this system makes up the Bosque del Apache NWR, an intensively managed refuge for migratory waterfowl and marsh birds. These include populations of wintering endangered whooping cranes (Grus americana), American peregrine falcons (Falco peregrinus anatum) and bald eagles (Haliaeetus leucocephalus).

The river is classified as Riverine Lower Perennial Open Water. Its highest channel flow occurs from March through October during peak water demands of down river irrigation districts. A period of low flow occurs during the fall and winter when water is diverted at San Acacia into the Rio Grande Conveyance Channel north of Socorro.

Water on the Bosque del Apache NWR is normally quite saline (U. S. Fish and Wildlife Service 1978). The wetlands delineated within the NWR are intensively managed and in a relatively constant state of change. Impoundments are flooded during the winter and drawdowns, to produce forage crops and grasses, are implemented in the spring. Generally, the woodland species that make up the Palustrine Forested or Scrub-Shrub wetlands are Russian olive (Elaeagnus angustifolia), Fremont cottonwood (Populus fremontii), and to a lesser amount saltcedar (Tamarix chinensis), and willows (Salix sp.). Ground cover in these areas is usually composed of saltgrass (Distichlis stricta), rabbitsfoot grass (Polyopogon monsepeleensis), and squirrel-tail (Sitanion hystrix).

Palustrine Emergent wetlands occur as ditches or impoundments that contain water throughout the year and therefore are able to support emergent vegetation. They represent Type 10 wetlands - Inland Saline Marshes (Shaw and Fredine 1971). Characteristic species include bulrushes (Scirpus sp.), sedges (Carex sp.), spikerushes (Eleocharis sp.), cattails (Typha domingensis), smartweed (Polygonum sp.), sago pondweed (Potamogeton pectinatus), phragmites (Phragmites communis), and willow (Salix sp.). The Bosque del Apache NWR is an important wintering area for large concentrations of waterfowl such as snow geese (Chen hyperborea), Canada geese (Branta canadensis), American coots (Fulica americana), mallards (Anas platyrhynchos), shovelers (Anas clypeata), pintails (Anas acuta), and greater sandhill cranes (Grus canadensis). Crops within the refuge are grown for wildlife use and are normally corn, grain sorghum, millet, winter wheat, barley and alfalfa (U. S. Fish and Wildlife Service 1978). Sixty six mammal species have been recorded on the refuge. They include mule deer (Odocoileus hemionus), beaver (Castor canadensis), muskrats (Ondatra zibethicus), coyotes (Canis latrans), raccoons (Procyon lotor), and bobcats (Lynx rufus) (U. S. Bureau of Reclamation 1978).

Riverine Intermittent Streambeds occur as arroyos among the hills and ridges in upland areas. These can be subjected to flash floods during the summer rains, but water availability is very brief. Arroyos are vegetated with characteristic species such as four-winged saltbush (Atriplex canescens), mesquite (Prosopis glandulosa), whitethorn (Acacia constricta), desert willow (Chilopsis linearis) and Apache plume (Fallugia paradoxa). This vegetation is distinct from the surrounding Chihuahuan desert upland associations.

The desert basins drain into playas which can vary in size. The Palustrine Flat is a playa less than 20 ha. Larger ones are classified as Lacustrine Littoral Flat. These plays 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. (Meinzer and Hare 1915). 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 use 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, may become well established but eventually give way to more drought resistant and salt tolerant plants.

Smaller Palustrine Flats, either as small playas or livestock stock tanks occur in the Jornada del Muerto Basin. 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 Oscura Mountains Area Map but unless the surface water is maintained by a windmill or other pumping device, they should be classified as Palustrine Flat. These wetlands are Type 9 wetlands - Inland Saline Flats (Shaw and Fredine 1971).

Springs are found in the upland areas usually as seeps and sometimes producing small rivulets; their permanence depending on the level of the water table. Around these springs and along their flow are cottonwoods, coyote willow shrubs (Salix exigua), and rushes of various species. Many are designated as Palustrine Scrub Shrub but this designation may also refer to the more common vegetation associated with drainages and described earlier for the Riverine Intermittent Streambed classification. The waters of these springs support aquatic invertebrate fauna of Coleoptera (beetles), Ephemeroptera (mayflies), Tricoptera (caddisflies), Gastropoda (snails), Nematoda (roundworms), and also serve as watering sites for wildlife.

| NWI Code | Description                         | Common Name               | Circular 39 Type | Characteristic Plant Species and Physiographic Features   |
|----------|-------------------------------------|---------------------------|------------------|---|
| R20W     | Riverine Lower Perennial Open Water | river, ditch, canal       | --               | Unvegetated. Sand to Mud bottom   |
| R4SB     | Riverine Intermittent Streambed     | arroyo, ditch, canal      | --               | Unvegetated. Sand to Mud bottom   |
| PFO/PSS  | Palustrine Forested/ Scrub Shrub    | bosque, riparian, springs | --               | Saltcedar ( <u>Tamarix chinensis</u> ), cottonwood ( <u>Populus fremontii</u> ), Russian olive ( <u>Elaeagnus angustifolia</u> ), willow ( <u>Salix sp.</u> ), saltgrass ( <u>Distichlis stricta</u> ), rabbitsfoot grass ( <u>Polypogon monsepeleensis</u> ), squirrel-tail ( <u>Sitanion hystrix</u> ). |
| PEM      | Palustrine Emergent                 | ditches, ponds            | 10               | Bulrushes ( <u>Scirpus sp.</u> ), sedges ( <u>Carex sp.</u> ), spikerushes ( <u>Eleocharis sp.</u> ), cattails ( <u>Typha sp.</u> ), smartweed ( <u>Polygonum sp.</u> ), sago pondweed ( <u>Potamogeton pectinatus</u> ), phragmites ( <u>Phragmites communis</u> ), willows.                             |
| PFL      | Palustrine Flat                     | playa, stock tank         | 9                | Unvegetated or Cockleburs, saltgrass, snakeweed ( <u>Xanthocephalum sp.</u> )   |
| POW      | Palustrine Open Water               | stock tank                | 9                | Unvegetated. Sand to Mud bottom   |
| L2FL     | Lacustrine Littoral Flat            | playa, dry lake           | 9                | Unvegetated or Cockleburs, saltgrass, snakeweed   |

## 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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