

NE

WETLAND USER NOTES -- Nogales NE QUADRANGLE

1. Map Preparation

Wetland classification for the National Wetlands Inventory (NWI) wetland map overlay to the Nogales NE 1:100,000 scale map are in accordance with L. M. Cowardin et al (1979). Wetland delineations and classifications were produced through the interpretation of black and white aerial photographs at a scale of 1:120,000 taken during June 1973. The photo-graphs were viewed stereoscopically at a 6X magnification. Delineations were enlarged using a zoom-transferscope to overlays of 1:24,000 and 1:62,500. Overlays were then transferred to 1:100,000 scale base maps. Limited field checks were performed during February 1979.

The Project Officer for production of the wetland map was Warren Hagenbuck, Regional Wetlands Coordinator, (U.S. Fish and Wildlife Service, Region 2, P.O. Box 1306, Albuquerque, New Mexico 87103, (505) 766-2914). Aerial photo interpretations were completed by the School of Renewable Natural Resources, University of Arizona, Tucson 85721, Project Director: Dr. Jon Rodiek (602) 626-2313.

The user of the map is cautioned that due to mapping, primarily through photo interpretation, a small percentage of wetlands may have gone unidentified. Landscape changes could have taken place since the time of photo acquisition; therefore, discrepancies or land use changes should be provided to the Regional Wetlands Coordinator, Region 2, U.S. Fish and Wildlife Service.

2. Collateral Data

A. General Location

The area is within Santa Cruz; Cochise and Pima Counties, Arizona.

Northern boundary	32° N Latitude
Southern boundary	31° 30' N Latitude
Eastern boundary	110° W Longitude
Western boundary	111° W Longitude

B. Land Ownership

There are four (4) major land holdings within the Nogales NE quadrangle. These are:

- Coronado National Forest
- BLM Lands
- Fort Huachuca Military Reservation
- Electronic Proving Grounds - Military Reservation

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C. Soils

There are eight (8) major soil associations found on the Nogales NE according to J. E. Jay et al (1975). These are:

Thermic semi-arid soils -- mean annual soil temperatures of 59° to 72° F (15-22° C) and 10-16 in (25-41 cm) mean annual precipitation.

- TS 3 Tubac-Sonoita-Grabe Association
- TS 2 Torrifluvents Association
- TS 5 Caralampi-Hathaway Association
- TS 4 White House-Bernardino-Hathaway Association
- TS 6 Lithic Torriorthents-Lithic Haplustolls-Rock Outcrop Association
- TS 14 Nickel-Latene-Cave Association

Mesic Subhumid Soils -- mean annual soil temperatures of 47-59° F (8-15° C) and more than 16 inches (41 cm) mean annual precipitation.

- MH 2 Lithic Haplustolls-Lithic Argiustolls-Rock Outcrop Association
- MH 1 Casto-Martinez-Canelo Association

Detailed soil information may be found in USDA Soil Conservation Service (1977), M. L. Richardson and M. L. Miller (1974) and USDA Soil Conservation Service (1970)

D. Biotic Communities

The descriptions of the biotic communities are summarized from C. H. Lowe (1977) and Brown, Lowe and Pase (1977). The community types are listed here in descending order of their relative dominance in the Nogales NE quadrangle.

The Semidesert Grassland, accounting for 8.0% of Arizona's total land area, is a transitional type of grass dominated landscape positioned between desert below and evergreen woodland or chaparral above. Its lower limit is about 3,500 feet in elevation and its best development is between 4,000 and 5,000 feet. In Arizona it occurs largely in the southeastern quarter of the state. A small area also occurs in the northwestern quarter near Kingman. The grasses are often bunch-growth perennials in which the bases of clumps are separated by bare ground. Where the soil is deep black gramma, blue gramma, slender gramma and others may be the dominant cover over large areas. A wider variety of shrubs, trees and cacti life forms occur on shallow-soiled rocky and gravelly hills and slopes. Mesquite trees have invaded large areas of former grassland. Mean annual precipitation ranges between 10 and 15 inches.

The Chihuahuan Desertscrub represents 1.5% of Arizona's land area and is a shrub desert. Representative areas are found in the southeastern corner of the state, primarily in Cochise County. Tarbush, creosotebush, sandpaperbush, or Chihuahuan white-thorn comprise the four major association-types of this desert occurring in Arizona. In many areas tar-

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bush, creosotebush and white-thorn are intermixed and associated with such species as desert sumac, ocotillo, and mesquite. The Chihuahuan Desert has a relatively poor representation of cactus life-forms due to its relatively high elevation (3,500'). Desert and grassland species form landscape mosaics controlled by marked changes in soil conditions over short distances. Mean annual precipitation is approximately 10 inches.

The Madrean Evergreen Woodland type covers 3% of Arizona's total land area. It is dominated by species of evergreen oak including silverleaf oak, Arizona oak, and Emory oak which occur primarily in the southeastern quarter of the state. They occur in hills and mountain slopes between 4,000 and 6,500 feet, reaching their greatest development in the foothills of the larger mountain ranges. The shrubs which center their distribution in these oakwoodland types, range upward into the pine forests or downward into the desert grasslands. Characteristic species include mountain yucca, agave, and woodland sumac. Other dry-tropic shrubs and succulents occur in varying degrees in these interior southwestern woodlands. A few cacti and grasses such as bullgrass, little blue stem and woody bunchgrass are found with blue gramma being the most common. Mean annual precipitation ranges between 12 and 22 inches.

The Plains and Great Basin Grassland spread over 15.5% of Arizona's land area, and forms a nearly continuous cover in an elevational zone between 5,000 and 7,000 feet. This type generally occurs in the eastern portion of the state. The grasses include gramma grass, needlegrass, dropseed and muhly. Plains grassland is a semi-arid habitat occasionally extending upward into the lower portion of the transition zone (ponderosa pine forest) in Northern Arizona and often is in mixtures with juniper-pinyon woodland and sagebrush. Mean annual precipitation ranges between 11 and 18 inches.

The Sonoran Desertscrub - Arizona Upland subdivision represents 14.0% of Arizona's land area and is comprised of the paloverde - sahuaro community, consisting of small desert trees, shrubs and numerous cacti. The best development of these is best attained on rocky hills, bajadas, and other coarse soiled slopes. It is a rich community of desert plants and animals, exhibiting highly varied and often spinose life-forms. The foothill understory is often comprised of a mixture of 5 to 15 or more shrub and dwarf shrub species in the form of a three, four or five layered understory. The primary desert trees are foothill paloverde, sahuaro, ironwood, elephant tree and a few others including some riparian species. Mean annual precipitation is approximately 10 inches.

The Petran Montane Conifer Forest (Ponderosa Pine) type extends over 7.5% of Arizona's land area and is dominated by the single species *Pinus Ponderosa*. Mature trees reach a large size (125 feet) and are in excess of 200 years old. This community exists between the elevations of 6,000 and 9,000 feet. Pure stands occur most commonly between 7,000 and 8,000 feet. The lower limit of the ponderosa pine forest is the lower elevation limit of the entire coniferous forest formation within Arizona. Mean annual precipitation is approximately 18 to 26 inches.

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3. SUPPLEMENTAL DATA (N.W.I.)

A. Hydrologic Units

Major hydrologic units found within the Nogales NE quadrangle are defined by the U.S. Geologic Survey (1974). For example, the coding designates region (15) Lower Colorado, subregion (01), accounting unit (00), and cataloging unit (05).

15050202
15050302
15050301

There are three (3) groundwater areas designated within the quadrangle by the U.S. Geological Survey (1979). These are:

Upper San Pedro Basin
Upper Santa Cruz Basin
Wilcox Basin

B. Geography

Landforms

Physical subdivisions and land surface forms are classified according to E. H. Hammond (1965). There are two (2) major types:

(V-4) B6a -- Intermontane Basin and Range Area; Plains with high mountains.

(V-4) B5a -- Intermontane; Basin and Range Area; Plains with low mountains.

Bailey's Ecoregions

Bailey's Ecoregion Classification, R. G. Bailey (1975), identifies the area as within the following province(s):

3140L Dry Domain; Semiarid Steppe Division; Mexican Highland Shrub Steppe Province.

3222L Dry Domain; Arid Desert Division; Creosote Bush-Bur Sage Section.

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4. Wetland Communities

The wetland and deepwater habitats displayed on the Nogales NE map are dominated by those types occurring along the stream systems emanating high in the mountain ranges flowing down into the outwash plains. The most prominent mountain ranges found here are the Santa Ritas, Huachucas, Dragons and the Whetstones. Lesser wetland types are found in association with these riverine types.

- L₂FL Lacustrine, Littoral, Flat
- L₁OW Lacustrine, Limnetic, Open Water/Unknown Bottom
- P₀W Palustrine, Open Water/Unknown Bottom
- PFO Palustrine, Forested
- PSS Palustrine, Scrub Shrub
- R₂OW Riverine, Lower Perennial, Open Water/Unknown Bottom
- R₂FL Riverine, Lower Perennial, Flat
- R₂BB Riverine, Lower Perennial, Beach/Bar
- R₃OW Riverine, Upper Perennial, Open Water/Unknown Bottom
- R₄FL Riverine, Intermittent, Flat
- R₄SB Riverine, Intermittent, Streambed

5. Field Checks

A. Plants Observed

<u>Common Name</u>	<u>Scientific Name</u>
Baccharis	Baccharis sp.
Fremont cottonwood	Populus fremontii
Mesquite	Prosopis juliflora
Tamarisk	Tamarix pentandra
Willow	Salix sp.
Saltbush	Atriplex sp.
Creosotebush	Larrea tridentata
Arizona sycamore	Platanus wrightii
Oak	Quercus sp.
Juniper	Juniperus sp.
Sunflower	Helianthus annuus
Cholla cactus	Opuntia fulgida
Palo verde	Cercidium sp.

6. Wetland Loss and Vulnerability

Riverine types are well represented by Sonoita Creek, Cienega Creek, Babocomari River and the San Pedro River. Remoteness and private land-ownership protect segments of these riverine types. The most vulnerable systems are the small live stream segments here. When these streams cross private land they become vulnerable to human recreation and cattle grazing.