

USER REPORT: SAN ANGELO, TEXAS
NATIONAL WETLANDS INVENTORY MAP

A. INTRODUCTION

The United States Fish and Wildlife Service's National Wetlands Inventory is producing maps showing the location and classification of wetlands and deepwater habitats of the United States. The Classification of Wetlands and Deepwater Habitats of the United States by Cowardin et al. is the classification system used to define and classify wetlands. Photo interpretation conventions, hydric soils lists and wetland plant lists are also available to enhance the use and application of the classification system.

B. PURPOSE

The purpose of the notes to users is threefold: (1) to provide localized information regarding the production of NWI maps, including specific imagery and interpretation discussion; (2) to provide a descriptive crosswalk from wetland codes on the map to common names and representative plant species; and (3) to explain local geography, climate, and wetland communities.

C. STUDY AREA

Geography

San Angelo is located in west central Texas. The map is bounded on the west by the 102nd meridian and on the east by the 100th meridian. It is bounded on the south by the 31st parallel and on the north by the 32nd parallel (figure 1).

According to Bailey, Descriptions of the Ecoregions of the United States, (1980), the majority of the project area falls within the Subhumid Prairie Division and the Semiarid Steppe Division.

Approximately 60% in San Angelo NW is within this latter division and the Great Plains Shortgrass Prairie Province. The division is also characterized by the Grama and Buffalo Grass Section. This covers the western part of San Angelo NW with smooth open plains. The remaining 40% of the map is located in the Prairie Brushland Province and is characterized by the Mesquite-Buffalo Grass Section. This is a region of rolling plains and plateaus with occasional small canyons.

San Angelo SW is a continuation of the Semiarid Steppe Division, with smooth open plains, in the northwest corner. The southwest corner of San Angelo SW is located in the Arid Desert Division and the Chihuahuan Desert Province. This is characterized by the Tarbush-Creosote Bush Section and has rolling plains of higher elevation going down to intermittent streambeds or washes. The rest of San Angelo is located in the Prairie-Brushland Province with the Mesquite-Buffalo Grass Section and smooth plains.

San Angelo NE is located entirely within the Subhumid Prairie Division, Prairie Brushland Province and Mesquite-Buffalo Grass Section. Steeper hills are indicative of the western portion of the map smoothing out toward the east.

San Angelo SE is located 90% in the Subhumid Prairie Division, Prairie Brushland Province and Mesquite-Buffalo Grass Section. The southeast corner of the map is characterized by the Juniper-Oak-Mesquite Section. The topography has steep, rocky slopes throughout most of the map smoothing out in the northeastern section.

The dominant vegetation of San Angelo NW, NE, SW, and SE is mesquite and upland grasses along with some oak. The elevation ranges from 1800-3000 feet above sea level for the entire 1:250,000 map.

Climate

The area experiences hot, dry summers with most of the rainfall occurring in the spring and fall. The winters are dry and mild with large, abrupt drops in temperature. The average annual temperature is about 65°F and the average annual precipitation is 18 inches with a very high evaporation rate.

Hydrology

The major drainage pattern is generally from northwest to southeast. The largest river in the project area is the Colorado River. This runs through San Angelo NE where it forms E.V. Spence Reservoir. Also in San Angelo NE, the North Concho River forms O.C. Fisher Reservoir just northwest of San Angelo. The South Concho River flows through San Angelo SE where it forms Lake Nasworthy and Twin Buttes Reservoir is formed by the Middle Concho and south Concho Rivers.

Soils

In this climatic area, calcification and salinization are dominant processes especially in poorly drained areas. Because of this soils are rich in calcium carbonate and bases. Mollisols are typical, with smaller areas of Alfisols and Vertisols. Humus content is minimal, because of the sparse vegetation.

Vegetation

Broad-leaved deciduous (PF01) species in forested wetland areas (temporarily flooded wetlands - PF01A) are Elm (Ulmus sp.), pecan (Carya illinoensis), hackberry (Celtis sp.), and sycamore (Platanus occidentalis). Willow (Salix sp.) is the only species for seasonally flooded wetlands (PF01C). Most of these trees generally appear in riparian communities, sloughs, or floodplains. Backwaters of reservoirs are areas where both water regimes may be encountered. Seasonal trees generally stand in moist soils subjected to pool fluctuations. The temporary trees are situated between seasonal trees and upland areas. The western soapberry (Sapindus drummondii) was observed in some riparian areas, but due to its classification as facultative upland and the dry nature of the study area, it was decided to classify it as an upland tree.

The scrub/shrub community consists of the above mentioned young trees below 20 feet in height as well as Baccharis glutinosa for temporary wetlands (PSS1A). Seasonally flooded shrub communities are primarily willow (PSS1C). Semi-permanently flooded (F) shrub wetlands consist of willow and/or buttonbush (Cephalanthus occidentalis, PSS1C-F). Willow dominates in the backwater areas of reservoirs and impoundments along with Baccharis.

Salt Cedar (Tamarix sp.), needle-leaved deciduous (PSS2) occurs in temporary (A) and intermittently (J) flooded situations in riparian communities. However, it may invade upon the backwaters of some reservoirs and impoundments in a seasonal condition. This can stress the plant, causing it to die.

Emergents in temporarily flooded (PEM1A) areas are cockleburr (Xanthium strumarium), broomsedge (Andropogon virginicus) and scaton (sporobolus sp.). Seasonally flooded emergents (PEM1C) consist of sedges (Carex sp.), spikerush (Eleocharis sp.), smartweed (Polygonum sp.), and three-square (scirpus sp.). Cattail (Typha latifolia), bulrush (Scirpus sp.) are the primary emergents in semi-permanently flooded situations (PEM1F). In several locations Marsh boltonia (Boltonia asteroides) was seen in some saturated/seep areas (PEM1B).

Aquatic beds consist of algae mats (AB1), and spatterdock (Nuphar luteum) (AB3). Aquatic beds were observed in the field which were not there at the time of photography.

D. WETLAND CLASSIFICATION CODES AND WATER REGIME DESCRIPTIONS

Table - Cowardin Classification Codes and Descriptions (1 of 2)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
L1UB (F,H)	Lacustrine, limnetic, unconsolidated bottom	Open water, lake	Unvegetated mud, sand, gravel
L2UB (F,H)	Lacustrine, littoral, unconsolidated bottom	Shallow open water, lake, lake bottom	Unvegetated mud, sand, gravel
L2US (A,C)	Lacustrine, littoral, unconsolidated shore	Lake bed, lake shore	Unvegetated mud, sand, gravel
L1AB1 (F,H)	Lacustrine, limnetic, aquatic bed	Algal mat	Algae
L1AB3 (F,H)	Lacustrine, limnetic, aquatic bed	Rooted vascular	Spatterdock (<i>Nuphar luteum</i>)
L2AB3 (F, H)	Lacustrine limnetic	Pond weeds, water weeds	Spatterdock (<i>Nuphar luteum</i>)
L1AB4 (F,H)	Lacustrine, limnetic, aquatic bed	Floating pond weeds, water weeds	Duckweed (<i>Lemna</i> sp.)
L2AB4 (F,H)	Lacustrine, limnetic, aquatic bed	Floating pond weeds, water weeds	Duckweed (<i>Lemna</i> sp.)
R2UB (H)	Riverine lower perennial, unconsolidated bottom	Open water river, stream	Unvegetated mud, sand, gravel
R2US (A,J,C)	Riverine lower perennial unconsolidated bottom	River flat, bar	Unvegetated mud, sand, gravel
R4SB (J,A,C,F)	Riverine intermittent streambed	Intermittent stream	Unvegetated mud, sand, gravel
PUB (F,H)	Palustrine unconsolidated bottom	Open water, pond bottom	Unvegetated mud, sand, gravel
PUS (J,A,C)	Palustrine unconsolidated shore	Pond shore, pond bed	Unvegetated mud, sand, gravel

Table - Cowardin Classification Codes and Descriptions (2 of 2)

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
PAB (F,H)	Palustrine aquatic bed	Algal mat	Algae Spatterdock (<u>Nuphar luteum</u>)
PEM1 (A,C,F,B)	Palustrine persistent emergent	Marsh, wet meadow	Bulrush (<u>Scirpus</u> sp.) Cattail (<u>Typha latifolia</u>) Cocklebur (<u>Xanthium</u> sp.) Rush (<u>Juncus</u> sp.) Sedge (<u>Carex</u> sp.) Smartweed (<u>Polygonum</u> sp.) Broomsedge (<u>Andropogon virginicus</u>) Marsh Boltonia (<u>Boltonia asteroides</u>)
PSS1 (J,A,B,C,F)	Palustrine, scrub shrub, broad leaved deciduous	Shrub wetland	Buttonbush (<u>Cephalanthus occidentalis</u>) Willow (<u>Salix</u> sp.) Sweepwillow (<u>Baccharis glutinosa</u>) Elm (<u>Ulmus</u> sp.) Pecan (<u>Carya illinoensis</u>) Sycamore (<u>Platanus occidentalis</u>)
PSS2 (J,A,C)	Palustrine scrub-shrub, leaved deciduous	Shrub wetland	Salt Cedar (<u>Tamarix</u> sp.)
PFO1 (J,A,B, C,F)	Palustrine forested, broad-leaved deciduous	Forested wetland	Cottonwood (<u>Populus deltoides</u>) Elm (<u>Ulmus</u> sp.) Green ash (<u>Fraxinus pennsylvanica</u>) Hackberry (<u>Celtis occidentalis</u>) Willow (<u>Salix</u> sp.) Pecan (<u>Carya illinoensis</u>) Oak (<u>Quercus</u> sp.) <u>smallii</u>) Sycamore (<u>Platanus occidentalis</u>)

E. Water Regime Modifiers

- (J) Intermittently Flooded -- Substrate is usually exposed, but surface water present for variable periods without detectable seasonal periodicity. Weeks or months or even years may intervene between periods of inundation. The dominant plant communities under this regime may change as soil moisture conditions change. Some areas exhibiting this regime do not fall within our definition of wetland because they do not have hydric soils or support hydrophytes.
- (A) Temporarily Flooded -- Surface water present for brief periods during growing season, but water table usually lies well below soil surface. Plants that grow both in uplands and wetlands are characteristic of this water regime.
- (B) Saturated -- The substrate is saturated to surface for extended periods during the growing season, but surface water is seldom present.
- (C) Seasonally Flooded -- Surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years. The water table after flooding ceases is extremely variable, extending from saturated to a water table well below the ground surface.
- (F) Semipermanently Flooded -- Surface water persists throughout the growing season in most years. When surface water is absent, the water table is usually at or very near the land's surface.
- (G) Intermittently Exposed -- Surface water is present throughout the year except in years of extreme drought.
- (H) Permanently Flooded -- Water covers land surface throughout the year in all years.
- (K) Artificially Flooded -- The amount and duration of flooding is controlled by means of pumps or siphons in combination with dikes or dams.

F. MAP PREPARATION

The wetland classifications used on San Angelo NW, NE, SW, and SE National Wetlands Inventory (NWI) base map is in accordance with Cowardin et al (1977). The delineations were produced through stereoscopic interpretation of 1:58,000 scale color infrared photography. This photography was taken between the dates of October 1984 and June 1985.

Field checks in all 1:100,000's were made prior to the actual delineation of wetlands. Field check sites were selected to clarify varying signatures found on the imagery. The photographic signatures were then identified using vegetation types and soil types as well as input from local field personnel.

Collateral data included USGS Topographic Quadrangles, SCS county soil surveys, climate, vegetation, field personnel input, ecoregional information.

The user of the map is cautioned that, due to the limitations of mapping primarily through aerial photointerpretation, a small percentage of wetlands may have gone unidentified. Since the photography was taken at a particular time and season, there may be discrepancies between the map and current field conditions. Changes in landscape which occurred after the photography was taken would result in such discrepancies.

Aerial photointerpretation was performed by Martel Laboratories, Inc., St. Petersburg, Florida.

G. SPECIAL MAPPING PROBLEMS

None

H. MAP ACQUISITION

To discuss any questions concerning these maps or to place a map order:

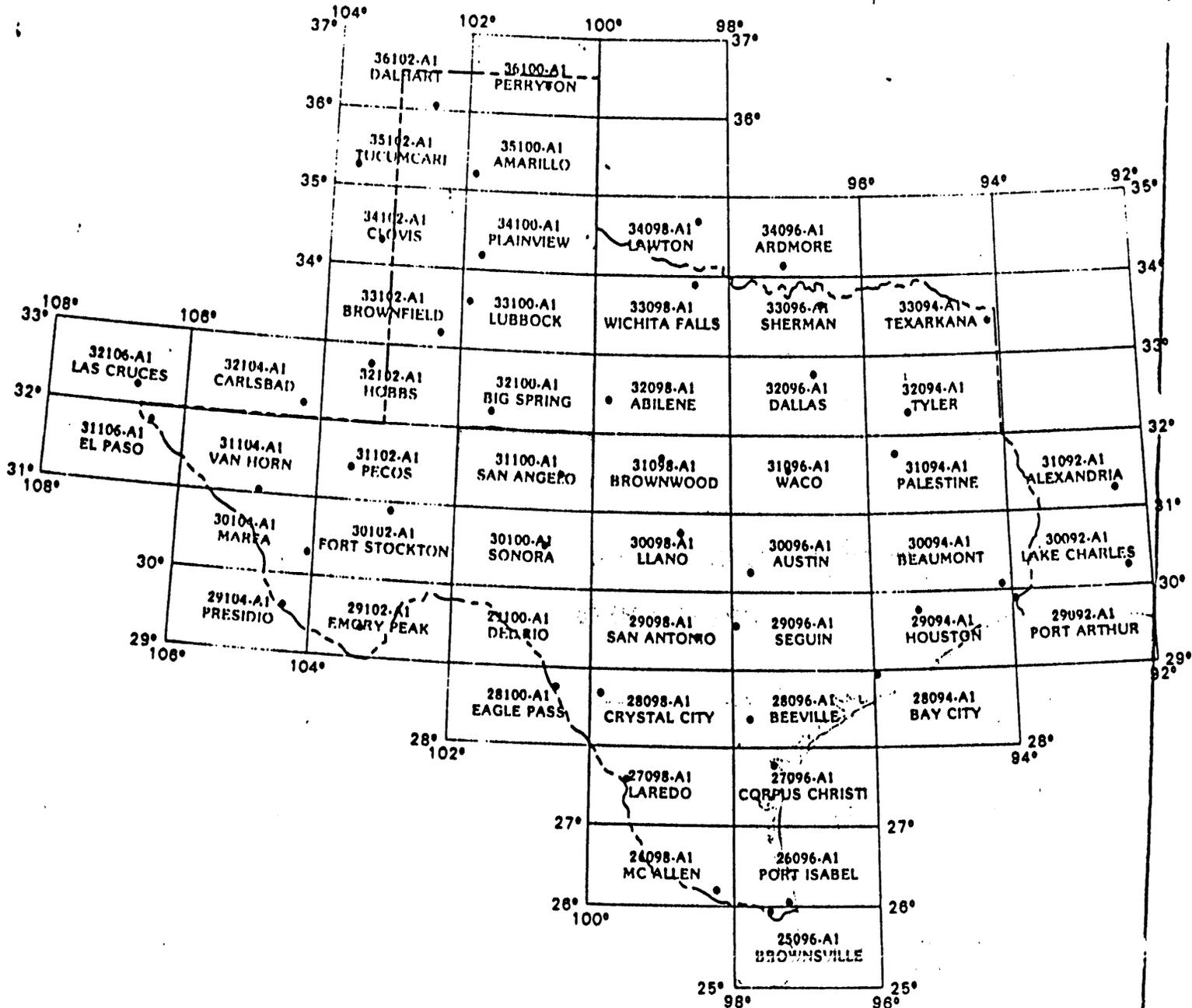
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