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NATIONAL WETLANDS INVENTORY

MAP REPORT OF

SOUTH FILL-IN PROJECT

The 1:100,000 Map Units of

Las Cruces NE, Las Cruces NW, Las Cruces SE,
Van Horn NE, Van Horn SE, Presidio NE, Marfa SE,
Clovis NW, Clovis SW, Brownfield SW, Socorro SE,
Clifton SE, Clifton SW, Silver City NE, Silver City SE,
Tularosa NE, Roswell NW, Roswell SW, Carlsbad NW,
Nogales NE, Nogales NW, Nogales SE, Nogales SW,
Lukeville NE, Ajo SE

EC/MC-R2	
Donnell	
Curley	
Fero	
Hagenbach	
Madi	
Sanchez	
Watkins	
FILE	SE
Group	
AUS	AB
CL	CC
ALL	FB
NO	GL

U.S. Fish & Wildlife Service
Region II
Albuquerque, New Mexico
September 2, 1995

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SOUTH FILL-IN PROJECT
NATIONAL WETLANDS INVENTORY
MAP REPORT

I. INTRODUCTION

The United States Fish and Wildlife Service's National Wetlands Inventory (NWI) is producing maps showing the location and classification of wetlands and deepwater habitats of the United States.

Wetlands on the NWI maps were identified from aerial photographs based on vegetation, visible hydrology, geography, soils and geology. Aerial photographs typically reflect conditions during the year and season in which they are taken. These maps are not 100% accurate and on-site inspections should be done. Some small wetlands and those obscured by dense forest cover may not be included. On-site inspection may reveal the presence of wetlands or wetland boundaries varying from those depicted on NWI maps.

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 soil lists and wetland plant lists are also available to enhance the use and application of the classification system.

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

II. FIELD RECONNAISSANCE

Field reconnaissance of the work area is an integral part of the accurate interpretation of aerial photography. Photographic signatures are compared to the wetland's appearance in the field by observing vegetation, soil, and topography. This information is based upon seasonality and conditions existing at the time of the photography and ground truthing.

The following 1:100,000 map partials were reviewed:

<u>Trip #1</u>	<u>Trip #2</u>	<u>Trip # 3</u>	<u>Trip # 4</u>
Las Cruces NE	Marfa SE	Clifton SE	Nogales NW
Las Cruces NW	Clovis NW	Clifton SW	Nogales SW
Las Cruces SE	Clovis SW	Silver City NE	Nogales NE
Van Horn NE	Brownfield SW	Silver City SE	Nogales SE
Van Horn SE		Socorro SE	Lukeville NE
Presidio NE		Tularosa NE	Ajo SE
		Roswell NW	
		Roswell SW	
		Carlsbad NW	

Project Area

The project area is located throughout western Texas, southern New Mexico & Arizona. See Map A and Map B for visual clarification.

Field Personnel

Curtis Carley	-	U.S. Fish and Wildlife Service Region II
John Swords	-	Geonex, Inc.
Brian Lane	-	Geonex, Inc.
Bill Brammell	-	Geonex, Inc.
Kerry Decker	-	Geonex, Inc.

Field Trip Dates

Trip # 1	February 6 - 14, 1995
Trip # 2	April 17 - 26, 1995
Trip # 3	May 21 - June 2, 1995
Trip # 4	June 18 - 29, 1995

Aerial Photography

Type: Color Infrared Transparencies
Scale: 1:58,000 NHAP, 1:40,000 NAPP
Dates: 1:40,000: 4/15/91, 5/11/91, 5/27/91
1:58,000: 6/24/83, 6/27/83, 7/23/83,
9/25/83, 5/27/84, 6/3/84,
6/7/84, 6/9/84

Percent Coverage: All USGS quadrangles were covered with the NHAP, or NAPP photography.

Collateral Data

United States Geological Survey Topographic Quadrangles:

111 at 1:24,000
13 (partial) at 1:250,000

Bailey's Description of the Ecoregions of the United States.
USGS Water Resources Data - Texas, Volume 2.
Playa Wetlands and Wildlife of the Southern Great Plains.
National List of Plant Species that Occur in Wetlands:
Texas.
National List of Plant Species that Occur in Wetlands:
Southwest.
National List of Plant Species that Occur in Wetlands:
New Mexico.
Hydric Soils of the state of New Mexico.
Hydric Soils of the state of Texas.
Classification of Wetlands and Deepwater Habitats of the
United States.
Field Guide to the North American Trees.
Field Guide; Trees and Shrubs.
Shrubs and Trees of the Southwest Uplands.

III. PHYSICAL DESCRIPTION OF PROJECT AREA

The work area ranges from western Texas, through southern New Mexico, ending in southwest Arizona. The project area extends through the Grama-Tobosa, Grama-Buffalograss, Grama-Galleta Steppe & Juniper-Pinyon Woodland Mosaic, and Creosote Bush-Bur Sage regions.

Geography

Trip # 1

Chihuahuan Desert Province: The region consists of undulating plains that can reach elevations of 5,000 ft., but usually only extend upwards to approximately 4,000 ft. The smaller drainages are filled with water only after a rain and frequently drain into the otherwise dry playa lakes. The work area within this province is in the Tarbush-Creosote Bush and the Grama-Tobosa regions.

Trip # 2

Great Plains-Shortgrass Prairie Province: This region is primarily flat with canyons, valleys and buttes dissecting the landscape. Elevations can reach up to 5,500 ft. The portion of this province that is in the work area is the Grama-Buffalograss region.

Trip # 3

Colorado Plateau Province: The work area is within the Grama Galleta Steppe & Juniper-Pinyon Woodland Mosaic ecoregion. Elevation ranges from 500 to more than 3,000 feet above sea level with some plateaus reaching 5,000 to 7,000 ft. Stream valleys are generally deeply entrenched with wide spacing in between them.

Trip # 4

American Desert Province: The work area within this province consists of the Creosote Bush-Bur Sage section. Elevations in the Sonoran Desert area range from 280 to 4,000 ft. above sea level. The topography consists of undulating plains to abrupt buttes and mountains.

Climate

Trip # 1

Tarbush-Creosote Bush/Grama-Tobosa: The climate is arid with extremely dry conditions during spring and early summer. The summer rainy season begins in July and extends into October. Localized torrential storms occur throughout the summer. Summers are typically long and hot, and winter temperature sometimes drop below freezing. Annual precipitation averages less than 8 inches.

Trip # 2

Gramma-Buffalograss: The climate is semi-arid, with the majority of precipitation occurring in the summer. Evaporation will usually exceed the precipitation. The summers are hot and the winters are cold and dry.

Trip # 3

Gramma Galleta Steppe & Juniper-Pinyon Woodland Mosaic: Cold winters characterize this area with generally hot summers. Summer thunderstorms occur but the majority of the precipitation occurs in the winter.

Trip # 4

Creosote Bush-Bur Sage: In this region extended summers with high temperatures are predominant. Winters are moderate but are subject to frosts. The summer months produce thunderstorms while the winters have mild and widespread rains.

Vegetation

Trip # 1

Tarbush-Creosote Bush\Gramma-Tobosa: This region contains open stands and sometimes low, closed thickets of shrubs. Mesquite is the dominant shrub and can be accompanied by creosote bush. Cottonwood trees can be present, but only adjacent to streams and rivers.

Trip # 2

Gramma-Buffalograss: This region is classified as shortgrass prairie. Clusters of short grasses can be located throughout the region. Typical plants in the region are buffalograss, sunflower, and locoweed. However, since the vegetation is sparsely distributed large portions of the soil is exposed.

Trip # 3

Gramma Galleta Steppe & Juniper-Pinyon Woodland Mosaic: Vegetation in this area corresponds with elevation although it is not uniform throughout the region. Arid grasslands with sagebrush and several species of cacti and yucca are common in the low elevations.

Trip # 4

Creosote Bush-Bur sage: Vegetation is sparsely distributed with small scattered stands of creosote bush. Cacti and other thorny shrubs are also common. Paloverde and mesquite are commonly found along drainages.

Soils

Trip # 1

Tarbush-Cresote Bush\Grama-Tobosa: The soils in the work area of this region are primarily Aridisols and Entisols.

Trip # 2

Grama\Buffalograss: In this region Mollisols are common. In the poorly drained areas salinization is typical. The soils in this region also predominantly contain precipitated calcium carbonate and other bases.

Trip # 3

Grama Galleta Steppe & Juniper-Pinyon Woodland Mosaic: Plateau tops, alluvial fans and weathered terraces contain Aridisols. Entisols are predominant along the flood plains of major drainages.

Trip # 4

Creosote Bush-Bur Sage: Aridisols dominate throughout the region. Entisols occupy weathered alluvial fans and terraces. The remainder of the region is steep mountain slopes which are covered with rock and gravel due to the severe desert rainstorms.

IV. DESCRIPTION OF WETLAND HABITATS IN THE WORK AREA

A. RIVERINE

Some drainages in the work area are classified as upper perennial, unconsolidated bottom, permanently flooded (R3UBH). Riverine bars are classified as R3USC, R3USA, AND R3USJ depending on signature.

Within most of the work area there are perennial and intermittent drainages. Classification is based on photo signature and USGS topographic maps. Lower perennial creeks are classified as R2UBH with riverine bars and flats classified as R2USC, R2USA or R2USJ depending on signature.

Intermittent streams are classified as intermittent, streambed (R4SB). These streams carry the following water regimes depending on collateral data and photo signature: Seasonally (R4SBC), temporarily (R4SBA), or intermittently (R4SBJ) flooded. The excavated modifier "x" and the artificially flooded modifier "K" is used with irrigation ditches (R4SBKCx).

Due to elevation and corresponding springs: the intermittent streams in higher elevations (4000' and up) are flooded for longer durations and will dry out as elevation decreases.

B. LACUSTRINE

Reservoirs and impoundments greater than twenty (20) acres are classified as limnetic, unconsolidated bottom, permanently flooded (L1UBH). Associated shoreline flats are classified as littoral, unconsolidated shore, seasonally flooded (L2USC), temporarily flooded (L2USA), or intermittently flooded (L2USJ). The impounded (h) and excavated (x) modifiers will be applied where appropriate.

C. PALUSTRINE

Palustrine wetlands are found along streams and rivers, in and around impounded areas, and in drainages.

Herbaceous palustrine systems will be classified either palustrine aquatic bed, floating, permanently, semi-permanent, or seasonally flooded (PAB4H/F/C) or palustrine emergents, persistent, semi-permanently, seasonally, or temporarily flooded (PEM1F/C/A). When these areas are directly associated with impounded reservoirs or ponds the impounded (h) modifier is used.

Scrub-shrub areas are classified as palustrine, scrub-shrub, broad-leaf deciduous, semi-permanently, seasonally, temporarily or intermittently flooded PSS1F/C/A/J. Palustrine, scrub-shrub, needle-leaf deciduous, temporarily or intermittently flooded. PSS2A/J is restricted to salt cedar. Forested, temporarily flooded PFO1A areas were also found.

Dry basins and unvegetated shore areas are classified as palustrine, unconsolidated shore, seasonally, temporarily, or intermittently flooded (PUSC/A/J). Basins with unconsolidated bottom are classified PUBF and PUBH. The artificial (K) water regime will be added if pumps or siphons are used. The impounded (h) and excavated (x) modifiers will be applied where appropriate.

Field check sites were performed and conventions, special concerns and/or potential problems were documented. Vegetation observed in wetland habitats were grouped according to class and water regime. The following plant species were identified at check sites and represent only a fraction of all wetland plant species occurring in the work area.

TABLE 1

OBSERVED WETLAND VEGETATION

A. <u>PALUSTRINE EMERGENTS:</u>	PEM
<u>Scirpus americanus</u>	American three-square
<u>Polygonum</u> sp.	smartweed
<u>Kochia</u> sp.	kochia
<u>Typha</u> sp.	cattail
<u>Eleocharis</u> sp.	spike rush
<u>Rumex</u> sp.	dock
<u>Mimulus</u> sp.	monkey flower
B. <u>PALUSTRINE SCRUB-SHRUB:</u>	PSS
<u>Salix</u> sp.	willow
<u>Baccharis</u> sp.	false-willow
<u>Tamarix ramosissima</u>	salt cedar
<u>Chilopsis linearis</u>	desert willow
<u>Juglans major</u>	New Mexico walnut
<u>Xanthium spinosum</u>	spiny-cocklebur
<u>Celtis occidentalis</u>	hackberry
<u>Populus fremontii</u>	cottonwood
<u>Plantus occidentalis</u>	sycamore
C. <u>PALUSTRINE FORESTED:</u>	PFO
<u>Salix</u> sp.	willow
<u>Celtis occidentalis</u>	hackberry
<u>Populus fremontii</u>	cottonwood
<u>Alnus oblongifolia</u>	Arizona alder
<u>Ulmus</u> sp.	elm
<u>Frainus velutina</u>	velvet ash
<u>Juglans major</u>	New Mexico walnut
<u>Plantus occidentalis</u>	sycamore
D. <u>UPLAND</u>	
<u>Prosopis</u> sp.	mesquite
<u>Quercus virginiana</u>	live oak
<u>Quercus pungens</u>	shinery oak
<u>Sapindus saponaria</u>	soapberry

Table II. NWI WETLAND CLASSIFICATION CODES, COWARDIN DESCRIPTION AND COMMON TERMINOLOGY

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
R3UB (H)	Riverine, upper perennial, unconsolidated bottom	Perennial mountain streams and rivers	Unvegetated sand or gravel bottom
R3US (J,A,C)	Riverine, upper perennial, unconsolidated shore	River flats	unvegetated mud, sand
R2UB (H)	Riverine, lower perennial, unconsolidated bottom	Perennial streams and rivers	Unvegetated mud, sand or gravel bottom
R2US (J,A,C)	Riverine, lower perennial, unconsolidated shore	River flats	Unvegetated sand or gravel bottom
R4SB (J,A,C)	Riverine, intermittent streambed	Intermittent streams	Unvegetated mud, sand, gravel, or rubble streambed
L1UB (H)	Lacustrine, limnetic, unconsolidated bottom	lakes or reservoirs	Unvegetated mud, sand, gravel or bedrock bottom
L2US (J,A,C)	Lacustrine, littoral, unconsolidated shore	Shorelines of lakes and reservoirs	Unvegetated mud, sand or gravel shore
PUB (F,H,K)	Palustrine, unconsolidated bottom	Ponds, impoundments and sewage treatment ponds	Unvegetated mud, sand, gravel or artificial bottom
PUS (A,C,K)	Palustrine, unconsolidated shore	Ponds and impoundments and sewage treatment ponds	Unvegetated mud, sand or gravel shores

Table II. NWI WETLAND CLASSIFICATION CODES, COWARDIN DESCRIPTION AND COMMON TERMINOLOGY

NWI CODE WATER REGIME	NWI DESCRIPTION	COMMON DESCRIPTION	CHARACTERISTIC VEGETATION
PEM (A,C,F)	Palustrine, emergent	Marshes, depressions, drainage areas or springs	<u>Polygonum</u> sp. (smartweed) <u>Typha</u> spp. (cattail) <u>Juncus</u> sp. (rush) <u>Scirpus</u> (bulrush)
PSS (J,A,C,F)	Palustrine, scrub-shrub	Thickets, river banks, drainage areas or springs	<u>Salix</u> sp. (willow) <u>Salix nigra</u> (black willow) <u>Tamarix</u> sp. (salt cedar)
PFO1 (A,C,F)	Palustrine, forested, broad-leaved deciduous	Forested depressions, or drainages	<u>Salix</u> sp. (willow) <u>Ulmus</u> sp. (elm) <u>Acer rubrum</u> (red maple) <u>Plantas occidentalis</u> (sycamore)
PAB (C,F,H)	Palustrine, aquatic bed	Ponds or deep marshes, impoundments, or excavations	<u>Nymphaea odorata</u> (white waterlily) <u>Lemna minor</u> (duckweed)

V. WATER REGIME DESCRIPTION

Non-Tidal

- (J) Intermittently Flooded - The substrate is usually exposed, but surface water is present for variable periods without any detectable seasonal periodicity. Weeks, months, or possibly years may occur between periods of inundation.
- (A) Temporarily Flooded - Surface water present for brief periods during the 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.
- (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 most years. When surface water is absent, the water table is often near the land surface.
- (F) Semi-permanently 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 surface.
- (H) Permanently Flooded - Water covers land surface throughout the year in all years.
- (K) Artificially Flooded - Amount and duration of flooding is controlled by means of pumps or siphons in combination with impoundments or reservoirs.

VI. IMAGERY

Imagery for this work area is of good quality and resolution. The majority of the photography was flown in 1983, 1984 and 1991. The photography is color infrared and was flown by NHAP (National High Altitude Program) and NAPP (National Aerial Photography Program).

Ground truthing revealed field conditions similar to those portrayed on the imagery. There were some exceptions such as streams in the field were flowing due to spring run-off but the photography appeared dry.

VII. MAP PREPARATION

Wetland delineation and classification is in accordance with Cowardin et al (1979). Further wetland mapping guidance is provided by National Wetlands Inventory photographic and cartographic conventions in concert with national consistency. Delineations were produced through stereoscopic interpretation of 1:58,000 and 1:40,000 scale color infrared photography.

Field checks of the work areas were made prior to the actual delineation of wetlands. Field check sites were selected to clarify varying signatures found on the photography. These photographic signatures were identified in the field using vegetation types and input from field personnel.

Collateral data included USGS topographic maps, SCS soil surveys, climate, vegetation and ecoregional information.

The user of this map is cautioned that, due to the limitation of mapping primarily through aerial photo-interpretation, a small percentage of wetlands may have gone unidentified. Since the photography was taken during 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 photo-interpretation and drafting were completed by Geonex Inc., St. Petersburg, Florida with quality control conducted by the United States Fish and Wildlife Service.

VIII. SPECIAL MAPPING PROBLEMS

Field conditions generally coincided with the photography. However, some areas had experienced a flood event prior to the photography, and many of the rivers and streams appeared scoured with less vegetation than observed in the field.

IX. MAP ACQUISITION

To discuss any question concerning these maps or to place a map order, please contact:

Regional Wetland Coordinator
U.S. Fish and Wildlife Service - Region II
Post Office Box 1306
Albuquerque, NM 87103

To order maps call 1-800-USA-MAPS.

Maps are identified by the name of the corresponding USGS 1:24,000 topographic quadrangle name. Topographic map indices are available from the United States Geological Survey.

X. LITERATURE CITED

Classification of Wetlands and Deepwater Habitats of the United States. L.M. Cowardin, V. Carter, F.C. Golet, and E.T. LaRoe. U.S. Fish and Wildlife Service, 1977.

National List of Plant Species That Occur in Wetlands: Texas. P.B. Reed Jr. U.S. Fish and Wildlife Service, Inland Freshwater Ecology Section, 1988.

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Trees and Shrubs. Peterson Field guides. G.A. Petrides, 1986.

Shrubs and Trees of the Southwest Uplands. F.H. Elmore, 1976.

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Playa Wetlands and Wildlife on the Southern Great Plains: A Characterization of Habitat. U.S. Department of the Interior, Fish and Wildlife Service, 1983.

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LOCATOR MAP A

LOCATOR MAP B

LOCATOR MAP A



MAPS OF ALASKA

SCALE	EDITION	PRICE
1:1,584,000	Base (2 sheets)	\$8.00/set

LOCATOR MAP A



MAPS OF ALASKA

SCALE
1:1,584,000

EDITION
Base (2 sheets)

PRICE
\$8.00/Sheet

