FIELD SUMMARY REPORT

I. Introduction

A. Llano SE, Llano NE, Waco SW, Waco, NW

B. Llano SE

Driftwood*	Rough Hollow	Payton*
Dripping Springs*	Henly	Yeager Creek
Sningle Hills	Hammetts Crossing	Pedernales Falls
Pace Bend	Spicewood	Round Mtn.
Blanco*	Crabapple Creek	Whitworth Ranch
Monument Hill	Hye	Stonewall*
Johnson City*	Rocky Creek*	Cave Creek School
Howell Mtn.	Blowout	Willow City
Rafter Hollow	Cypress Creek	
Cain City	Oak Crest Park	
Fredericksburg East	Fredericksburg West	
Crab Apple	Cherry Mtn.	

Llano NE

Travis Peak	Smithwick	Marble Falls
Bertram	Mormon Mill	Longhorn Cavern*
Joppa	Burnett*	Council Creek*
Bachelor Peak*	Lake Victor	Naruna
Dunman Mtn.	Click	Oxford
Kingsland*	Cap Mtn.	Llano South*
Lake Buchanan*	Lone Grove	Llano North
Tow	Indian Hills	Cherokee
Enchanted Rock	House Mtn.	
Scotts Crossing*	Castell	
Valley Spring	Smoothing Iron Mtn.	
Magill Mtn.	Pontotoc	

Waco SW

Westphalia	Seaton	Temple
Lott	Belfalls*	Troy*
Chilton	Bruceville*	Moody
Robinson	Lorena*	South Basque
Belton	Nolanville	Killeen*
Moffat*	Bland	Post Oak Mtn.
Eagle Springs*	Leon Junction	North Fort Hood
McGregor	Oglesby	Gatesville East
McMillian Mts.	Copperas Cove*	
Fort Hood	Twin Mts.*	
Shell Mts.*	Pidcoke	
Gatesville West	Purmela	

*Indicates quadrangle with checksite(s)

Waco NW		
Waco East	Waco West	Speegleville*
Elm Mott*	Gholson	China Springs
West	Aquilla	Smiths Bend
Abbott	Peoria*	Whitney*
Crawford	Coryell*	Turnersville
Valley Mills	Mosheim*	Hurst Springs
Laguna Park	Clifton*	Sugarloaf Mtn.
Allen Bend	Pilot Knob	Meridian*
Ater	Jonesboro	
German Valley*	Cutoff Mtn.	
Cranfills Gap	Fairy	
Irdell	Spring Creek	

*Indicates quadrangle with cnecksite(s)

C. Personnel: Dennis Fowler - Martel Labs
Tom Ries - Martel Labs
Warren Hagenbuck - USFWS

D. Date of Field Trip: June 15 - June 19, 1987

E. Available Photography:

1.

Waco NW	Waco NW
09-21-81	12-01-81
11-01-81	09-17-81
10-27-81	09-19-81
11-0-81	

Llano NE	LLano SE
02-28-83	01-29-83
01-23-83	02-08-83
01-23-83	03-01-83
03-28-83	02-10-83
01-27-83	

2. Scale: All photography is 1:58K scale.

3. Type: All photography is color infrared.

F. Collateral Data

1. We have full coverage on all four 1:100,000's with 7.5' USGS Quadrangles.
2. Soil surveys for the following counties will be used.

San Saba	Falls
Mclennan	Travis
Blanco	Williamson
Burnet	Bell
Gillespie	Kendall

General soil maps are available for the following counties:

Llano	Limestone
Hamilton	LaSalle

3. Large paper copies of Bailey's ecoregion maps for the Waco and Llano 1:250,000 were also utilized.

II. Overview:

The Texas study area is contained in two different provinces. Two-thirds of the project is covered by the Juniper-Oak-Mesquite Savanna section of the Prairie Brushland Province. This province is a region of rolling plains, plateaus, and dissected canyons. Elevations range from sea level to 3600 ft.

This area experiences long, hot summers and short, mild winters. Average annual temperatures are 60°F to 70°F. The annual range of frost-free days is from 250 to 300. Precipitation ranges from 20 to 30 inches and falls primarily during the growing season.

The characteristic look of this province is one of arid grasslands punctuated by low trees and shrubs growing singly or in clumps.

The other one-third of the study area is covered by the Oak-Bluestem Parkland section of the Prairie Parkland Province. The topography of the area is characterized by gently rolling plains with the occasional steep bluff bordered valley. Elevations range from sea level to 1200 feet.

Falling mainly during the growing season, the average annual precipitation is from 23 to 40 inches. The average annual temperature ranges from 50°F in the north to 70° in the south. The average number of frost-free days per year ranges from 140 to 280.

The characteristic vegetation of this province is intermingled prairie, groves, and strips of decidious trees. This is known as forest-steppe land type.

The prairie is dominated by grasses; the dominant type being bluestem.

The upland forest is dominated by oak and hickory. Trees more common in the river flood plains are elm, sycamore, cottonwood, and hackberry.

Soil types that meet the requirements of the National Technical Committee for Hydric Soils are not common in this part of Texas. Soils are an important criteria in the classification of the wetland community. These are the soils on the Hydric Soils of the State of Texas 1985 list.

Trinity Clay
Wilson clay loam
Tinn clay
Roetex clay

These soils occur primarily in the streambed or on the adjacent stream banks.

III. Biological characteristics of Wetland Habitats

Marine: not represented
Esturine: not represented
Riverine: The major rivers in Llano NE and Llano SE 1:100,000's are the Colorado R., the Pedernales R. the Llano R., and North Grape Creek. The main river in the Waco SW and Waco NW 1:100,000's is the Brazos R. Streams that are shown to be perennial on the USGS quadrangle are to be classified R2UBH with a few exceptions. Several rivers flow over and among bedrock and rubble. They will be classified R2RSA or R2RSC according to their relative size and amount of water evident. The polygon will be from edge to edge on these rivers.

Care must be taken to watch for wetland scrub-shrub vegetation. Many areas contained willow (*Salix* sp.) and sycamore (*Platanus accidentalis*) shrubs. They will be separated and classified PSS1C.

Intermittent streams appearing on the USGS quadrangle will be classified R4SBA or R4SBC if they are devoid of vegetative cover (scrub-shrub, emergents, forest).

Unconsolidated shore along rivers will be classified R2USA or R2USC.

Several rivers are being impounded by overflow type dams. These backed-up waters will be classified PUBHh.

Some of the streams and rivers may be excavated. If this is evident, the excavated special modifier ("X") should be used.

Lacustrine: No natural lakes were observed during field checking or on general review of the photography. Impounded reservoirs in the area are quite numerous and in many cases exceed the twenty acre size restriction for a classification of L1UBHh by a large amount. No excavated, L1UBHx lakes were seen in the field, but this classification will be used if necessary.

Palustrine: Many of the palustrine wetlands are linear in nature.

Linear PFOIA wetlands consist of Green ash (Fraxinus pennsylvanica) American elm (Ulmus americana), Sycamore (Platanus occidentalis), Hackberry (Celtis occidentalis), Pecan (Carya illinoensis), Cottonwood (Populus deltoides), and an occasional Willow (Salix negra).

The linear PFO1C wetlands consist mainly of willow with the occasional sycamore or cottonwood.

The linear PSS1A and PSS1C wetlands consist of the same makeup of species as the forested linears.

Noted in the field were several drainages containing Button bush (Cephalanthus occidentalis). They will be classified in the semi-permanent water regime (F) where noted on the photo jacket (PSS1F). The signature is not distinct enough to use in general, so only the noted examples will be classified.

Some linear emergent areas were observed. These consist mainly of Spikerush (Eleocharis sp.) and Cattail (Typha latifollia). These were primarily classified PEM1C with a few PEM1A's.

Stock tanks and ponds will be classified mainly according to their size. The larger more permanent looking ponds will be classified PUBHh. Smaller ponds that still appear dark and to have some depth will be classified PUBFh. The ponds showing white through shallow water will be classified PUSCh. If little or no water is present, it will be classified PUSAh.

Some impoundments show an emergent signature, usually dark greenish brown. If this is seen it will be classified PEM1Ah, PEM1Cn or PEM1Fh according to the strength of the signature. These emergents are Spikerush (Eleocharis sp.), Smartweed (Polyginum sp.), and Cattail (Typha latifollia). They appear in the seasonally flooded and the semi-permanently flooded situations. Temporary

Basins, in many cases corresponding with intermittent water areas on the soil surveys, have a light brown to almost

black signature. They will be classified PEM1A, PEM1C or PEM1F, depending on the strength and darkness of the photo signature. Eleocharis was the only noted emergent in these basins. One example of a basin that has been farmed was classified PEM1Af. This checksite #4-14 can be seen on the Stonewall quadrangle and on photo #53-161 in the Llano SE 1:100,000.

Aquatic bed was seen during field checking. Duckweed (Lemna sp.) is the aquatic bed present and will be classified PAB4Hh.

IV. Imagery, Preliminary Delineations, Field Checking

Because of the varying dates of photography, the study area has many differing emulsions. Some show the U-A, A-C, etc. breaks better than others, thus making interpretation easier.

One particular emulsion, in strip 7 Waco SW, is a difficult one. The basic color of the photo is orange. All the trees are orange. The strip goes right through the middle of Ft. Hood. The number of road and trails that have been cut through the landscape and the almost shiny white return make interpretation difficult at best. All of the imagery that covers Ft. Hood is covered with these white roads and trails. This will basically make photo interpretation more difficult because of the disruption of the habitat is fairly extensive.

About 2% of the imagery have a minor amount of spectral reflectance. This doesn't cause much of a problem since most of the water is confined to narrow streambeds thus revealing a relatively small surface area.

All of the imagery has good resolution.

2. Season of Photography:

All of the imagery was taken from early fall to late winter. This poses no problem in interpretation.

3. Climatic conditions at time of photography:

The climatic conditions at the time of photography seem to be well with the normal range for this area.

IV. Expectations vs. Ground Verifications:

The fact that most of the vegetated wetlands in the study area are linear in nature came as no surprise. The entire nature of the area is drainage oriented. This has much to do with the rapid runoff characteristic of most of the upland soils.

The amount of seasonal wetlands was somewhat a surprise. After thorough field checking, the seasonal vs. temporary signature can be distinguished with relative ease.

Summary: The long growing season and the adequate amount of annual precipitation allows a diverse community of wetlands to exist throughout the study area.

Overall, the imagery is of good quality and should allow good detail in delineation. Attention should be paid to topographic quadranges, soil surveys, and onsite inspections. As always, direct onsite analysis of local communities affords more detailed information as needed by the user.