FIELD SUMMARY REPORT

Study Area: Treasure Coast (Florida)
Fort Pierce NE, SE (Partials)
West Palm Beach NE, SE (Partials)

See attached map for study area boundaries.

USGS Quadrangles with Field Check Sites:

Fort Pierce NE -	Fort Drum
	Fort Drum NE
	Fellsmere
	Fellsmere 4 NW
	Grant
	Sebastian
	Sebastian NW
	Vero Beach
Fort Pierce SE -	Indian Town
	Indian Town SE
	Indian Town NW
	Okeechobee 1 SE
	Okeechobee 1 SW
	Okeechobee 1 NW
	Okeechobee 4 NE
	St. Lucie Inlet
West Palm Beach NE -	Delta
	Jupiter
	Palm Beach
	Palm Beach Farms
	Riviera Beach
	Rood
	West Palm Beach 2 NE
West Palm Beach SE -	Fort Lauderdale 2 SE
	West Dixie Bend

Dates: Trip 1 - 4/30 - 5/3/84
Trip 2 - 6/11 - 6/13/84

Trip 1 was for preliminary delineation and signature check of photography. Trip 2 was performed for additonal ground verification. Signatures not checked on first trip verified and initial interpretation checked for agreement with John Hefner.

Personnel:	Trip 1 -	Thomas Gunter	Martel Laboratories, Inc.
		Keith Patterson	Martel Laboratories, Inc.
		Rudy Nyc	US Army Corps of Engineers
		Blake Parker	US Fish & Wildlife Service
	(5-2-84)	Dan Carey	Treasure Coast Planning Council
	Trip 2 -	Thomas Gunter	Martel Laboratories, Inc.
		John Hefner	US Fish & Wildlife Service

all year. Most of the area is covered by open marsh of grasses, sedges and aquatic herbaceous plants, the major ones being sawgrass and three-awns (Aristida spp.). Included in this marsh grassland are more mesic habitats called hammocks. These are slightly elevated and some have a "moat" of open water around them or at least more fire tolerant species at the edge. The major species on these hammocks are Mahogany, red bay, palmettos, strangler fig, titi, and epiphytes.

Biological Characteristics of Wetland Habitats:

Marine: Marine areas were either open water or unconsolidated shore with the exception of one worm reef visited. The unconsolidated shore (beach) on the Atlantic Ocean was split into two zones, regularly and irregularly flooded.

Estuarine: The estuarine system contained both subtidal and intertidal subsystems. The mangrove communities were both forested and scrub/shrub in nature and seemed to be a mixture of reds, blacks, and whites. The red mangroves were found as the most "seaward" group, with blacks being behind them. The white mangroves were found on higher areas less frequently flooded.

Unconsolidated shore areas visited were sandy flats within areas of impoundment behind the mangroves or beaches of the intracoastal waterway.

Emergent vegetation was predominantly Batis, glasswort (Salicornia), and/or saltgrass (Distichlis). In many cases, the unconsolidated shore and emergent areas were mixed, leading to a mixed class community of EM/US or US/EM.

Aquatic bed is visible on the photography but no sites were visited for species identification.

Riverine: Riverine areas can be lower perennial, tidal, and, in some instances, intermittent. All major rivers (e.g., Loxahatchee and St. Lucie) will be tidal and lower perennial. All drainage ditches and canals will be lower perennial or intermittent with an "excavated" special modifier.

Aquatic bed species were water hyacinth (Eichhornia), water lettuce (Pistia), duck weed (Lemma), and water spangles (Salvinia). These areas were either permanently or semipermanently flooded and most were excavated. Due to signatures which could not be identified, aquatic bed will be classed as AB6.

Lacustrine: Open water areas greater than 20 acres exhibited limnetic and/or littoral subsystems and were mainly confined to Lake Okeechobee and Blue Cypress Lake. There are small, man-made lakes in subdivisions which will be given the "excavated" special modifier.

Aquatic beds were similar to those found in the riverine system.

Palustrine: Areas in this system are forested, scrub/shrub, emergent, aquatic bed, open water and unconsolidated shore.

Unconsolidated shore is found in areas of excavation which show water still remaining in the deeper pockets. Also visible are some areas of dried up ponds. Most all have the "excavated" special modifier due to man's influence.

Open water areas are almost exclusively excavated ponds in areas of urbanization, agriculture, or are borrow pits and will therefore have the "excavated" special modifier.

Aquatic beds are similar to those of the previous systems. A few areas also contained water lily (Nymphaea) and spatterdock (Nuphar) but these signatures were not distinguishable and all aquatic beds (other than in the estuarine system) will be classified as floating vascular.

Emergent areas occupy depressions of all sizes and also occur in many areas of the large marshes. These are the most abundant and diverse of the wetlands found in the field. Species in these communities include maidencane (Panicum hemitomon), sand cordgrass (Spartina bakeri), other native and introduced grasses, spike rushes (Eleocharis spp.), bullrushes (Scirpus spp.), break rushes (Rhynchospora spp.), soft rush (Juncus effusus), bladderworts (Utricularia spp.), water hyssops (Bacopa spp.), white-top sedge (Dichromena), hat pins (Eriocaulon), bog or marsh buttons (Lachnocaulon), wild batchelor's buttons (Polygala spp.), Sabatia grandiflora, yellow-eyed grasses (Xyris spp.), sawgrass (Cladium sp.), pickerel weed (Pontederia sp.), arrowhead (Sagittaria spp.). Some depressional areas visited which on the photography appear as emergent wetlands are mostly St. John's wort (Hypericum sp.). These should be classified as scrub/shrub wetlands but are not distinguishable on the photography and will therefore be lumped with the emergent class.

Scrub/shrub communities are, for the most part, willow (Salix sp.) in marsh areas with varying amounts of button bush (Cephalanthus sp.) mixed in. Drier areas also contained wax myrtle (Myrica sp.). As the uplands are entered, wax myrtle becomes more evident and saw palmetto (Serenoa repens) becomes dominant. Gallberry (Lyonia sp.) also is found in these more upland habitats. Temporarily flooded areas in the pine flatwoods contained wax myrtle, scattered saw palmetto, and scattered, stunted pine trees.

Forested areas are comprised of cypress (Taxodium sp.), bays (Magnolia sp., Persea sp., and Gordonia sp.), maple (Acer sp.), and tupelo (Nyssa sp.). Some areas are being invaded by Melaleuca and large isolated stands were encountered as well as scattered invading individuals. Cypress and the bays occurred as pure stands respectively as well as in various mixes with other trees. Pure stands of cypress are almost exclusively semipermanently flooded, while mixes are either semipermanently or seasonally flooded. Bay swamps or bayheads are saturated or seasonally flooded.

Pine flatwoods mainly occur on questionable wetland soils and have understories which contain many wetland as well as upland species. These species include saw palmetto , sundews (Drosera spp.), three-awns (Aristida spp.), panicums (Panicum spp., Dichanthelium spp.), bluestems (Andropogon spp.) and other scattered marginal wetland species. No pine flatwoods which could be definitely designated as wetland were encountered and only areas of connection between depressions will be classified as temporary wetlands unless collaterial data denotes otherwise. Australian pine (Casurina sp.) and Brazilian pepper (Schinus sp.) were generally found to be upland.

Imagery: The photography provided for the study is color infrared flown over a period of two days, January 29 and 30, 1984, and at a scale of 1:50,000. The quality is good and usable, although somewhat dark. There are some areas of cloud cover which will be uninterpretable resulting in holidays without other photo coverage. NHAP should be acquired and checked for these areas.

Expectation vs. Field Verification:

Marine beaches will be split more or less evenly into tow zones, regularly and irregularly flooded.

In the estuarine system mangroves give three different tonal returns. The expected, typical return is a smooth, bright red and this is present on the photography. Tree sized mangroves, however, give a darker red and a texture which is not as smooth showing more individual crowns. The third return of mangrove is the most puzzling. Areas of mangrove within impoundments, mostly whites, give a smooth, green signature. These areas have less leaf on the plants and apparently are the result of a stress condition. Estuarine emergent areas have a smooth medium green return with no apparent height.

Palustrine aquatic bed show signatures ranging from bright pink-red to darker brown-red. Species composition could not account for this change from a subclass designation standpoint, therefore all will be placed in the unknown surface subclass. This pertains to riverine and lacustrine systems aquatic bed also. Palustrine emergent communities range from very light green to very dark (black) green. Very light (whitish) green areas are mainly cattail and are either seasonally or semipermanently flooded. Light green areas are temporary in nature and most often form the connections between the seasonal and/or semipermanent depressions. Medium green tones are the seasonally flooded emergent communities. These can be found as the border of semipermanently flooded depressions, as individual depressions or as connections between semipermanent depressions. Dark green to very dark (black) green areas are the semipermanent depressions.

Scrub/shrub willow communities are medium to light gray-green in tone, with a smooth texture. These areas can look like emergents without height where they form extensive thickets as in the St. John's marsh. They are also found in depressions or ponds where they range from seasonally to semipermanently flooded. Evergreen shrubs give various red returns. Wax myrtle and saw palmetto give a bright pink-red with wax myrtle being more scattered and saw palmetto being more smooth with little height.

Deciduous tree species of forested communities are of a medium green tone. Cypress is a medium gray green slightly darker than willow with a very smooth texture. When in pure stands, it is semipermanently flooded. Maple and tupelo are found mixed with cypress and have a very similar tone but not as smooth a texture to the return. More individual crowns can be seen. Evergreen species of trees are red. Pines are bright red pink and usually scattered. Areas where they are more concentrated have a darker pink red return. Bay trees have a bright red return and are smooth in texture. These areas are usually somewhat isolated and have various shapes, some resembling cypress domes. They are usually saturated but may be seasonally flooded. They will generally be saturated. Oaks have a darder red return than do the bays typically.

The estuarine/palustrine interface is a very difficult area. Soil surveys will play a major role in determining this break. Many areas at the landward edge of the estuarine system are upland due to spoil or impoundments and have Brazillian pepper and Australian pine with upland grasses as the species present. These areas where Australian pine and Brazilian pepper are found show both red and green tones. They should show as reds. This change is presumably due to frost damage.

Summary:

Generally, photo quality is good and interpretation can be performed with reasonable accuracy. Collateral data should be of great help in determining the wetland/upland break in areas of pine flatwoods and at the palustrine/estuarine interface. Cloud cover and other problems mentioned in this report make the field checking of the draft product a critical stage to insure accuracy for the final product.