

RECEIVED

APR 18 1985

This is good example,
especially if add V, VI, VII
and VIII from outline.

P. 11

U.S. FISH & WILDLIFE SERVICE
ST. PETERSBURG, FL
NATIONAL WETLANDS INVENTORY

NOTES TO USERS

for the

Bainbridge, Carrabelle, Marianna, Panama City, Port Saint Joe, and Tallahassee ^{SE}
1:100,000 Scale Map Areas

would all
be this
standard
introduction

INTRODUCTION

In 1974, the U.S. Fish and Wildlife Service directed its Office of Biological Services to conduct an inventory of the nation's wetlands. This National Wetlands Inventory (NWI) became operational in 1977.

Wetland delineations depicted on these maps were produced by stereoscopically interpreting high altitude aerial photography and then transferring this information with a zoom transfer scope to an overlay using the U.S. Geological Survey 7.5' or 15' map series as base information.

Wetlands were identified on the photography by vegetation, visible hydrology, and geography, and subsequently classified in general accordance with Cowardin et al. Classification of Wetlands and Deep Water Habitats of the United States. Where, for pragmatic reasons, strict adherence to this classification system was not possible, mapping conventions developed by NWI were used.

MAP PREPARATION

These six 1:100,000 map areas were produced using 1:80,000 color infrared photographic prints taken in November of 1972, February of 1973, and January of 1975. Also employed were 1:60,000 color infrared photographic transparencies captured during November of 1979; therefore, these wetland maps reflect late 1979 environmental conditions.

Field checking was conducted from August 29 through September 1, 1977, December 12 through 14, 1977, February 28 through March 1, 1978, June 19 through 22, 1978, January 7 through 12, 1980, and January 16 through 18, 1980.

Collateral information used in this mapping effort included U.S. Geological Survey topographic maps, Soil Conservation Service soil surveys of Gadsden, Holmes, Jackson, Leon, and Washington Counties, National Oceanographic and Atmospheric Administration coastal charts, and the Florida Department of Natural Resources-Division of Marine Resources map of oyster bed locations in Apalachicola Bay.

SPECIAL MAPPING PROBLEMS

Several problems were encountered in this project and are discussed below.

- (1) Waterward extent of estuarine system. The estuarine system was extended to offshore intertidal beaches/bars to include numerous oyster beds that were visible on the photography. In the eastern portion of the study area (Apalachee Bay) where there are no bars, but oysters are present, the estuarine/marine demarcation was made along a line from the light south of the headquarters of St. Marks National Wildlife Refuge to Peter's Rock. This line follows the refuge's boundary. From Peter's Rock this demarcation extends east-southeast to Rock Islands which are off the study area.
- (2) Landward extent of estuarine system. This was extended upstream until contiguous vegetation became dominated by woody growth.
- (3) Extent of tidal influence upstream. This was a best guess based on available data and personal communications.
- (4) Water regime of intertidal beaches/bars and flats. Most of these, particularly those not irregularly flooded, were assigned an unknown (U) water regime.
- (5) Distinguishing needle-leaved deciduous forest (cypress) from broad-leaved deciduous forest (tupelo). These subclasses were lumped (deciduous). The semi-permanent water regime (F) will distinguish cypress and/or tupelo dominated swamps from temporarily to seasonally flooded bottomlands.
- (6) Distinguishing needle-leaved from broad-leaved deciduous shrubs. These two shrub types were lumped together and classified as deciduous.
- (7) Water regimes of sink hole lakes. Local individuals indicate that these lakes exhibit approximately a 14 year cycle from high water to high water. The photography exhibited low water conditions,

therefore, the following conventions were applied:

- (a) Areas that still showed water on the photography were classified as permanently flooded.
- (b) Areas that did not show water, but the topographic sheets indicated as perennial were classified as intermittently exposed. These areas were classified as littoral open water if there was no visible vegetation and classified according to vegetation (usually shrubs and emergents) if the areas were vegetated.
- (c) Areas that fit the wetland definition, but exhibited no water either on the photography or the topographic sheets were classified as intermittently flooded flats.

STUDY AREA

The study area lies in the panhandle of Florida with the Gulf of Mexico to the south and the state borders of Alabama and Georgia to the north. The east-west boundaries are at 84° and 86° west longitude or approximately 60 miles east and west of the Apalachicola River. The study area encompasses approximately 11,000 square miles of land and water. Major cities in the study area include Tallahassee in the northeast and Panama City in the southwest.

Major industries include farming in the north and logging in the south. Important crops are corn, peanuts, soybeans, vegetables, small grains, and pasture grasses. Cattle are also an important farm product. Both pulpwood and sawlogs are cut from the extensive pine forests. Additionally, Apalachicola Bay produces 80% of Florida's oysters.

Major natural lakes present in the study area include Lake Jackson, Lake Iamonia, Ocheesee Pond, and the extensive sink hole lake distribution in southern Washington County and northern Bay County. Reservoirs include Lake Talquin formed by damming the Ochlochonee River and Dead Lake formed by damming the Chipola River. Also, Jim Woodruff Reservoir (Lake Seminole) in Georgia borders the study area. Additional primary streams are the Apalachicola River which originates at Jim Woodruff Reservoir, Choctawhatchee River, Holmes Creek, New River, Buck River, Crooked River, Little River, and St. Marks River. Drainage is also accomplished laterally along poorly defined streams and vertically through limestone caverns. Major estuaries are Apalachee Bay, Apalachicola Bay, St. Joseph's Bay, West Bay, East Bay, and Lake Wimico. The Gulf Intra-coastal Waterway passes through the southern portion of the study area.

The climate is greatly influenced by the Gulf of Mexico with the summers being long, warm and humid and the winters cool and mild. Winds generally come from the south during the summer and from the north during the winter. An average of approximately 60 inches of precipitation, nearly all in the form of rain, annually falls on the study area. There is generally good distribution of the rainfall throughout the year; however, two rainy seasons occur from March to early April and from June through September. October and November usually are the driest months. Tropical storms and hurricanes can occur from June to mid-November. The average annual temperature is about 68°F with the daily maximum average about 80°F and the daily minimum average about 57°. The growing season lasts from the end of February or beginning of March until the end of November or beginning of December.

Bailey categorizes the ecoregion of the areas as such:

Division: Humid Subtropical
Province: Outer Coastal Plain Forest
Section : Beech-Sweetgum-Magnolia-Pine-Oak Forest

Hammond identifies the land surface forms and physical subdivisions as:

Division : Gulf-Atlantic
Subdivisions: Eastern Gulf-Atlantic Rolling Plain
Eastern Gulf-Atlantic Coastal Flats
Land Surface Forms: Irregular Plains, Flat Plains

The Gulf Coastal Plain in this area is dominated by sand with clay and silt also being present. Clay and silt typically are found in broad level areas. These three sediments were primarily deposited from seawater when ocean levels were higher. The soils tend to be wet, acidic, and low in major plant nutrients and are predominately of the three following orders: Entisols, Spodosols, and Ultisols. The Entisols are found on gently or moderately sloping land in a small area west of Jim Woodruff Reservoir. These are of the suborder Quartzipsamments and great group Quartzipsamments plus Umbraquults. The Spodosols are found on gently sloping land from the mouth of the Apalachicola River inland approximately 60 miles and approximately 60 miles to the east and west of the Apalachicola River. These are of the suborder Haplaquods and great group Haplaquods plus Quartzipsamments. The Ultisols are found over the rest of the study area and are of the suborder Paleudults. Two great groups are recognized, the Paleudults found on gentle slopes and the Paleudults plus Quartzipsamments found on moderate slopes.

Elevations on the study area range from sea level in the south to less than 350 feet in the north.

WETLAND COMMUNITIES

The following are regularly used alpha-numeric codes found on the wetland maps. A general description and/or community type, including dominant vegetation also is provided.

Marine System

- M10WL - Subtidal, high-energy, open ocean generally without vegetation.
- M2BB_ - Beaches exposed to high-energy wave action. The water regime for these areas varies from irregularly exposed (M), to regularly flooded (N), to irregularly flooded (P). Because of the difficulty to pinpoint water regimes, the unknown water regime (U) often was used for Beach/Bars and Flats.

Estuarine System

- E10WL - Subtidal, low-energy, brackish water of sounds, bays and stream channels generally without vegetation.
- E2BB_ - Intertidal beaches and bars located in the somewhat protected environment of bays and sounds. Water regimes are as those listed under M2BB.

- E2FL_ - Intertidal flats located in low-energy environments of sounds and bays. Water regimes are as those listed under M2BB.
- E1AB6L - Subtidal aquatic beds or grass flats. Dominant vegetation includes Turtle Grass (Thalassia testudinum), Widgeon Grass (Ruppia maritima), and Shoal Grass (Halodule beaudettei). Associated species are Manatee Grass (Cymodocea filiformes), Halophila spp., and macroscopic algae. The alpha-numeric E2AB6M indicates those areas that are occasionally exposed by extreme low water.
- E1RF2L - Subtidal oyster (Crassostrea virginica) reefs. The alpha-numeric E2RF2M and E2RF2N indicate those reefs that are irregularly exposed and regularly flooded, respectively.
- E2EM5P - Irregularly flooded brackish marsh. These areas are typically dominated by narrow-leaved emergents such as Black Needle Rush (Juncus roemerianus), Smooth Cordgrass (Spartina alterniflora), Big Cordgrass (S. cynosuroides), Saltmeadow Cordgrass (S. patens), Three-Corner Grass (Scirpus olneyi), Leafy Three-square (S. maritimus) Giant Bulrush (S. californicus), Sawgrass (Cladium jamaicense), Saltgrass (Distichlis spicata), Reed (Phragmites communis), and Cattail (Typha spp.).
- E2SS1P - Irregularly flooded, broad-leaved deciduous shrubs usually located landward of the brackish marshes. The most prevalent species are Groundsel-Tree (Baccharis halimifolia), Marsh Elders (Iva frutescens, I. imbricata) and Sea Ox-eye (Borrichia frutescens).
- E2SS3P - Irregularly flooded, broad-leaved evergreen shrubs. The dominant species usually is Waxmyrtle (Myrica cerifera).
- E2SS4P - Irregularly flooded, needle-leaved evergreen shrubs dominated by slash pine (Pinus elliotii).
- E2SS7P - Irregularly flooded, evergreen shrubs where both broad-leaved and needle-leaved evergreen shrubs are present or the distinction could not be made from the photography.
- E2F04P - Irregularly flooded, needle-leaved evergreen forest dominated by Slash Pine (Pinus elliotii). Typically an open canopy is present with interspersions of Black Needle Rush (Juncus roemerianus).

Lacustrine System

- L10WH - Permanently flooded, limnetic, sink-hole lakes. The addition of the impounded ("h") special modifier indicates a reservoir.
- L2FLC - Seasonally flooded lake flats. These areas usually result from natural drawdowns during dry periods and typically are devoid of vegetation. The intermittently flooded (J) and intermittently exposed (G) water regimes indicate the unpredictable hydrology of some sink-hole lakes. This is further explained under "Special Mapping Problems."

- L2BBC - Seasonally flooded lake beaches typically devoid of vegetation.
- L2AB4G - Intermittently exposed to permanently flooded, floating-leaved
L2AB4H aquatics growing in shallow water. The most prevalent species include Fragrant Water Lily (Nymphaea odorata), Water Shield (Brasenia schreberi), American Lotus (Nelumbo lutea), Spatterdock (Nuphar luteum), and Frog's-bit (Limnobium spongia).
- L2AB5G - Intermittently exposed to permanently flooded floating
L2AB5H aquatics growing in shallow water. Dominant species include Water Hyacinth (Eichhornia crassipes), Duckweeds (Lemna spp., Spirodela spp.), Water Meals (Wolffia columbiana, Wolffiella floridana), and Waterfern (Azolla spp.).
- L2AB6H - Permanently flooded, submerged aquatics growing in shallow water. The dominant vegetation can be rooted or free-floating below the water surface and includes macroscopic algae (Pithophora spp., Chara spp., Nitella spp.), Bladderworts (Utricularia spp.), Naiads (Najas spp.), Watermilfoils (Myriophyllum spp.), Hydrilla (Hydrilla verticillata), Eleodea spp., Fanworts (Cabomba spp.) and Pondweeds (Potamogeton spp.)
- L2AB7G - Intermittently exposed to permanently flooded surface aquatics
L2AB7H growing in shallow water. Vegetation is free-floating (L2AB5_) and/or floating-leaved (L2AB4_).

Riverine System

- R10WV - Permanently flooded, tidal, open water rivers and streams.
- R20WH - Permanently flooded, lower perennial rivers and streams.
- R2FLA - Temporarily to seasonally flooded river flats typically
R2FLC unvegetated.
- R2BBA - Temporarily to seasonally flooded river bars. These areas
R2BBC usually are unvegetated and occur on the convex side of river meanders.
- R2AB4H - As for L2AB4H but occurring within a channel.
- R2AB5H - As for L2AB5H but occurring within a channel.
- R2AB6H - As for L2AB6H but occurring within a channel.
- R2AB7H - As for L2AB7H but occurring within a channel.

Palustrine System

- POWH - Permanently flooded, small open water ponds. The impounded modifier ("h") indicates open water areas behind dammed streams while the excavated modifier ("x") indicates small dugouts and borrow pits. Photographically identifiable beaver activity in these areas is indicated by the "b" modifier. A special mixed alpha-numeric (POWH/✓) represents fish hatchery ponds.
- PAB4G - As for L2AB4G and L2AB4H, but with an aerial coverage of less
PAB4H than 20 acres.
- PAB5G - As for L2AB5G and L2AB5H, but with the aerial coverage of
PAB5H less than 20 acres.
- PAB6H - As for L2AB6H, but with the aerial coverage of less than 20 acres.
- PAB7G - As for L2AB7G and L2AB7H, but with the aerial coverage of less
PAB7H than 20 acres.
- PFLJ - Intermittently flooded to seasonally flooded palustrine flats.
PFLA PFLJ refers to intermittently flooded sink-hole ponds while the
PFLC other two usually refer to draw-down areas of ponds.
- PEM1A - Temporarily flooded, persistent emergents. The most extensive areas of this sort are located on the lower coastal plain and are often termed savannahs or wet meadows. Unless sustained by frequent fire, these areas are quickly invaded by evergreen shrub growth (see PSS7) eventually resulting in an open canopy of pine (see PF04A). Often Wiregrass (Aristida stricta) will be the dominant emergent, particularly under natural conditions. In addition, other common species include orchids (Habenaria spp., Calopogon pulchellus, Spiranthes spp.), Pipeworts (Eriocaulon spp.), Bog-button (Lachnocaulon anceps), Yellow Star-grass (Aletris aurea), Yellow-eyed Grass (Xyris spp.), Meadow Beauties (Rhexia spp.), Milkworts (Polygala spp.), Seedboxes (Ludwigia spp.), White-top Sedges (Dichromena spp.), Pinks (Sabatia spp.), Goldenrod (Solidago spp.), Rayless Goldenrod (Bigelowia nudata), Coastal Broomsedge (Andropogon glomeratus), Aster spp., Cane (Arundinaria gigantea), and Beakrushes (Rynchospora spp.). Several species listed under PEM1B also will occur in this habitat. Often there is greater than 30% evergreen shrub canopy and a mixed cover type is used (PSS7/EM1A).

Other temporarily flooded emergent communities present outside of the lower coastal plain are often bottomland cleared of forest vegetation. These areas may reflect this disturbance and support many "weed" species as Dogfennels (Eupatorium spp.), Goldenrods (Solidago spp.), Pokeweeds (Phytolacca spp.), Sticktight (Bidens laevis) and Aster spp. Also, many of the previously mentioned species found in savannahs or wet meadows will be present, in addition to smartweeds (Polygonum spp.) and sedges (Carex spp. and Cyperus spp.). In areas of intensive grazing, Soft Rush (Juncus effusus) will be very prevalent.

- PEM1B - Saturated to seasonally flooded persistent emergents. Very
 PEM1C often when supporting greater than a 30% canopy of evergreen shrubs, this community is described with an alpha-numeric mixture (PSS7/EM1B, PSS7/EM1C; See descriptions under PSS7). Many of these areas are commonly referred to as pitcher-plant bogs. Photographically the distinction between this community and that described under PEM1A is difficult to discern; however, an attempt was made to identify this wetter community where Pitcher-plants (Sarracenia spp.), Sundews (Drosera spp.), Clubmosses (Lycopodium spp.), Sphagnum spp., and Red-root (Lachnanthes caroliniana) become important members of the community. Most of those species listed under PEM1A also will be found here. Fire is an important ecological influence in the maintenance of this community.
- PEM1C - Seasonally to semipermanently flooded, persistent, emergent marshes.
 PEM1F These are deep marshes that exhibit standing water for long periods during the growing season. Prevalent vegetation includes Sagittaria spp., Bulrushes (Scirpus spp., with S. cyperinus very prevalent), Pickerelweed (Pontederia cordata), Soft Rush (Juncus effusus), Sawgrass (Cladium jamaicense), Hibiscus spp., Smartweeds (Polygonum spp.), Maidencane (Panicum hemitomon), Switchgrass (Panicum virgatum), Sugarcane Plumegrass (Erianthus giganteus), Golden Club (Orontium aquaticum), Peltandra virginica, Alligatorweed (Alternanthera philoxeroides), Lizard's Tail (Saururus cernuus), Cattails (Typha spp.), Elephant's Ear (Colocasia antiquorum), Sedges (Carex spp., Cyperus spp.), Spikerushes (Eleocharis spp.), Burreed (Sparganium americanum), Spiderlily (Hymenocallis caroliniana), Southern Wild Rice (Zizaniopsis miliaces), and Cutgrasses (Leersia spp.).
- PSS6A - Temporarily flooded, broad-leaved deciduous shrubs. Most often this represents cleared bottomland with the dominant species being regenerating trees (see PF01A).
- PSS6C - Seasonally to semi-permanently flooded, broad-leaved deciduous
 PSS6F shrub swamps. Dominant vegetation usually is willows (Salix spp.), Smooth Alder (Alnus serrulata), Buttonbush (Cephalanthus occidentalis), Deciduous Holly (Ilex decidua), Coastal Pepperbush (Clethra alnifolia), Dogwoods (Cornus spp.), stunted Cypress (Taxodium distichum) and Elderberry (Sambucus canadensis), in addition to saplings less than 20 feet tall (See PF01C, PF01F). The PSS6T alpha-numeric represents freshwater shrub swamps that are semi-permanently flooded and under tidal influence.
- PSS3A - Temporarily flooded, broad-leaved evergreen shrubs. This cover type is often used in combination with the emergent class to describe many savannahs (PSS3/EM1A) where fire maintains an open canopy. Dominant species include Waxmyrtles (Myrica cerifera, M. heterophylla), Greenbriars (Smilax spp.) Hollies (Ilex glabra, I. coriacea, I. vomitoria), and Saw Palmetto (Serenoa repens) with Sweet Bay (Magnolia virginiana), Fetterbush (Lyonia lucida) Red Bay (Persea borbonia, Loblolly Bay (Gordonia lasianthus), and Titi (Cyrilla racemiflora) also being represented.

PSS3B - Saturated, broad-leaved evergreen shrubs. This cover type is very prevalent on hillside seeps and drainage ways. Titi (Cyrilla racemiflora), Buckwheat Tree (Cliftonia monophylla), Sweet Bay (Magnolia virginiana), Red Bay (Persea borbonia), and Waxmyrtles (Myrica spp.) are the dominant shrubs, but most others listed under PSS3A may also be present.

This alpha-numeric is often mixed with the emergent class (PSS3/EM1B, PSS3/EM1C) to represent many of the pitcher-plant bog communities. Here, False Cypress (Hypericum fasciculatum) and Hollies (Ilex spp.) become very prevalent along with most of the other above-mentioned species being represented.

PSS3C - Seasonally to semipermanently flooded, broad-leaved evergreen shrubs. Many of these areas are locally termed "titi swamps" with Titi (Cyrilla racemiflora) and Buckwheat Tree (Cliftonia monophylla) being the dominant species. Various bays also are well represented.

PSS4A - Temporarily flooded, needle-leaved evergreen shrubs. This usually indicates planted Slash Pine (Pinus elliottii) saplings and often is used in a cover type mix with broad-leaved evergreen shrubs (PSS4/3A).

PSS4B - Saturated, needle-leaved evergreen shrubs. This usually is used in pitcher-plant bogs where pine planting has occurred. This habitat usually is described as a mix (PSS4/3B, PSS4/EM1B).

PSS4C - Seasonally flooded, needle-leaved evergreen shrubs. These pine areas are wetter than that described under PSS4A and often are classified as a mix (PSS4/3C). Many of these areas also are planted.

PSS7_ - Evergreen shrubs existing in a variety of water regimes. This alpha-numeric usually indicates a mixed cover type with both broad-leaved evergreen (PSS3_) and needle-leaved evergreen (PSS4_) shrubs being present. The two alpha-numeric combinations most often used are PSS7/EM1A representing savannahs or lower coastal plain meadows and PSS7/EM1B or PSS7/EM1C representing pitcher plant bogs.

PF01A - Temporarily to seasonally flooded, deciduous forests. This alpha-numeric indicates southern mixed hardwood and flood plain forests. These bottomland hardwoods are composed of numerous species including Red Maple (Acer rubrum), Tulip Tree (Liriodendron tulipifera), Water Oak (Quercus nigra), White Oak (Q. alba), Swamp Chestnut Oak (Q. michauxii), Cherrybark Oak (Q. falcata var. pagodaefolia), Nuttall's Oak (Q. nutallii), Shumard Oak (Q. shumardii), Willow Oak (Q. phellos), Hackberry (Celtis occidentalis), Sugarberry (C. laevigata), Black Gum (Nyssa sylvatica), River Birch (Betula nigra), Sweetgum (Liquidambar styraciflua), Box Elder (Acer negundo), Silver Maple (A. saccharinum), Honey Locust (Gleditsia triacanthos), Pignut Hickory (Carya glabra), Mockernut Hickory (C. tomentosa), Basswood (Tilia americana), Red Mulberry (Morus rubra), Ironwood (Carpinus caroliniana), and Persimmon (Diospyros virginiana).

In the wetter habitats many other water tolerant tree species become prevalent. Although most of the above mentioned trees also will be observed, there is a marked increase in several species of oak such as Laurel Oak (Quercus laurifolia) and Overcup Oak (Q. lyrata). Ashes such as Water Ash (Fraxinus caroliniana), Green Ash (F. pennsylvanica), and Pumpkin Ash (F. profunda) also become more dominant in the overstory. Additional water tolerant species include silver maple (Acer saccharinum), Bald Cypress (Taxodium distichum), Water Tupelo (Nyssa aquatica), Swamp Black Gum (N. sylvatica var. biflora), Ogeechee Tupelo (N. ogeche), Drummond's Red Maple (Acer rubrum var. drummondii), Water Hickory (Carya aquatica), American Elm (Ulmus americana), and Water Locust (Gleditsia aquatica).

Several bottomland species are consistently observed as the dominant vegetation of overgrown sandbars. Although not restricted to this habitat the dominant species are Willows (Salix spp.), Cottonwoods (Populus deltoides, P. heterophylla), and Sycamore (Platanus occidentalis).

- PF01B - Saturated, broad-leaved deciduous forest. This community occurs along seepage areas on relatively steep slopes. Major deciduous trees are Swamp Black Gum (Nyssa sylvatica var. biflora); Ogeechee Tupelo (N. ogeche) and Red Maple (Acer rubrum); however, usually co-dominates exist in the form of broad-leaved evergreens (PF01/3B) and needle-leaved evergreens (PF01/4B).
- PF06E - Seasonally flooded/saturated broad-leaved deciduous forest. This alpha-numeric is used only near the mouths of the Apalachicola and Choctawhatchee Rivers to denote very wet seasonally flooded swamps where the surface water is gone before the end of the growing season, however, the soil remains saturated. These areas are dominated by species of tupelo: Swamp Black Tupelo (Nyssa sylvatica var. biflora), Water Tupelo (N. aquatica) and Ogeechee Tupelo (N. ogeche). Associated species may include Bald Cypress (Taxodium distichum), Drummond's Red Maple (Acer rubrum var. drummondii), Water Hickory (Carya aquatica) Planer-tree (Planera aquatica), and Overcup Oak (Quercus lyrata).
- PF06F - Semipermanently flooded, deciduous forest. These areas usually occur as depressions in flatwoods or river flood plains such as old oxbows and are dominated by the various species of tupelo enumerated under PF01E in addition to Bald Cypress (Taxodium distichum). Flatwood depressions are characteristically dominated by the Swamp Black Gum (Nyssa sylvatica var. biflora) and/or Cypress.
- PF03A - Temporarily flooded, broad-leaved evergreen forest. These areas support species such as Live Oak (Quercus virginiana) and Southern Magnolia (Magnolia grandiflora).
- PF03B - Saturated, broad-leaved evergreen forest. This community occurs on relatively steep slopes of watercourses and seepage areas. Representative species include Red Bay (Persea borbonia), Sweet Bay (Magnolia virginiana), Loblolly Bay (Gordonia lasianthus), Buckwheat Tree (Cliftonia monophylla) and Swamp Cyrilla (Cyrilla racemiflora).

Usually these species are co-dominant with broad-leaved deciduous trees (PF03/1B) or needle-leaved evergreens (PF03/4B).

PF03C - Seasonally to semipermanently flooded, broad-leaved evergreen forest.
PF03F These areas are typically referred to as "titi swamps" and "bayheads." Species composition is as that listed under PF03B.

PF04A - Temporarily flooded needle-leaved evergreens usually dominated by either Loblolly (Pinus taeda) or Slash Pine (P. elliotii). Often these areas are planted.

This dominance type may be mixed with emergents (PF04/EM1A) to represent open savannahs. Species here include the above-mentioned pines in addition to Longleaf Pine (Pinus palustris). The understory is as that described under PEM1A. A PF04/SS3A mixture represents a suppressed fire habitat where broad-leaved evergreen shrubs (see PSS3A) have replaced the emergent canopy.

Higher "islands" in river floodplains often support mixed stands of pines and hardwoods (PF04/1A). Along major streams this usually consists of Loblolly Pine (Pinus taeda) in combination with hardwood species described under PF01A.

PF04B - Saturated, needle-leaved evergreen forest. This cover type describes hillside seeps and pitcher plant bogs. The former is usually indicated as a mix with broad-leaved evergreens, either trees or shrubs (PF04/3B; PF04/SS3B). The latter often involves planted pines in pitcher plant bogs when, usually, Slash Pine (Pinus elliotii) is the canopy dominant. Often this cover type is mixed with emergents (PF04/EM1B) to describe natural, open canopy, pine flatwoods.

Lower or mixed canopy vegetation is as that listed under PF01B, PF03B, PSS3B, PEM1B, and PEM5B.

PF04C - Seasonally flooded, needle-leaved evergreen forest. When described as the sole canopy the dominant vegetation usually is planted Slash (Pinus elliotii) or Loblolly Pine (P. taeda). Most often this dominance type is described as a mixture with broad-leaved evergreen trees (PF04/3C) or shrubs (PF04/SS3C) with the dominant needle-leaved tree being Slash Pine (Pinus elliotii) and the co-dominants as those described under PF03C and PSS3C.

Many drainage ways and stream bottoms are described as a mixture of either Loblolly or Slash pines with bottomland hardwoods identified under PF01A, PF06C. In many forested strand drainages in the pine flatwoods near the coast, Slash Pine is often mixed with Pond Cypress (Taxodium distichum var. ascendens) (PF04/6C).

The mixture PF04/EM1C describes pitcher plant bogs with an overstory of usually Slash Pine and an understory as is described under PEM1C or PEM1B.

PF07 - Evergreen forest existing in a variety of water regions. The evergreen subclass indicates that both needle-leaved and broad-leaved evergreens are present with neither exhibiting a clear dominance.

This alpha-numeric is usually used in combination with deciduous trees (PF06/7) indicating a large diversity of broad-leaved evergreen, needle-leaved evergreen, broad-leaved deciduous and needle-leaved deciduous trees.

SPECIAL MODIFIERS:

"b" - Beaver: Beavers are very active in most parts of the northeast Gulf Coast. These activities often result in dead timber (trees (PF05___) or shrubs (PSS5___)), opening of canopies, or mono-specific stands of Tupelo (Nyssa spp.) and/or Cypress (Taxodium sp.) because of the death of lesser water tolerant species.

"d" - Partially Drained/Ditched: Since most of the study area was forested, this modifier was extremely difficult to use because of the closed canopies obscuring interpretation ability. Therefore, this modifier is only used on wetlands surrounded by cleared land that exhibits an existing ditch and within low growth wetlands such as bogs where the ditches are visible.

Field investigation revealed that most forested areas also are ditched. One particular form is "hipping" where the soil is turned over resulting in alternating crests and troughs. Pines are subsequently planted on the elevated "hips". Since these "hips" were not photographically identifiable and closed canopies obscured all but the larger ditches, very little attempt was made to indicate ditched forested wetland.

"h" - Diked/Impounded: This is used to indicate reservoirs and small impoundments of ponds. Some impoundments may be unidentified beaver activity; therefore, some wetlands with the "h" modifier would, in fact, be better described with the "b" modifier.

"s" - Spoil: This denotes wet spoil derived from channel dredging.

"x" - Excavated: This usually is applied to ditches and small ponds or borrow pits. Many of these ponds and pits will exhibit vegetation.