

NATIONAL WETLANDS INVENTORY

NOTES TO USERS

NORTH CENTRAL FLORIDA

1:100,000 SCALE MAPS COVERED

GAINESVILLE NW, SW and SE

DAYTONA BEACH NW, SW and SE

NATIONAL WETLANDS INVENTORY

1:100,000 MAP NARRATIVE

INTRODUCTION

The U.S. Fish and Wildlife Service, Office of Habitat Resources, is conducting an inventory of the wetlands of the United States. The National Wetlands Inventory (NWI) is establishing a wetland data base in both map and computer forms for the entire country. The NWI information will serve to identify the current status of U.S. wetlands and can be used as a reference point from which future changes in wetlands can be evaluated.

PURPOSE

The purpose of Notes to Users is to provide general information regarding the production of NWI maps and wetlands found within a relatively similar geographic area. Notes to Users are not intended to include a complete description of all wetlands found in the area nor provide complete plant species information.

Areas Covered:

The study area consisted of the Daytona Beach 1:250,000 Map (excluding the Daytona Beach NE 1:100,000 map unit, which is composed entirely of the Atlantic Ocean) and the Gainesville 1:250,000 map excluding the Gainesville NE 1:100,000 map unit. This area is found between 29° and 30° North latitude and between 80° and 84° West longitude. (See Index Map A.)

Bailey's Ecoregions:

Bailey includes the whole study area in the Outer Coastal Plain Forest Province. This is the flat and irregular southern Gulf Coastal Plains. Marshes, swamps, and lakes (small and large) are numerous and rivers and streams are abundant. The area is, for most part, gently sloping while some areas contain a rolling relief. This local relief is less than 300 feet (90 meters).

The area is referred to as the Temperate rainforest. Commonly found trees include evergreen oaks and members of the laurel and magnolia families. The forests usually have a well developed understory which may include ferns, small palms, shrubs and herbaceous plants. Vines and epiphytes are also common.

The area is mainly second growth forests of needleleaf evergreen or coniferous species with large areas of sandy upland vegetated with species of pine and with baldcypress in the wet swamps and sloughs. The climax vegetation for mesophytic habitats is, however, the evergreen-oak and magnolia forest.

Climatic conditions for the study area are generally uniform. The average annual temperature range is small to moderate ranging from 60° to 80° F. Rainfall is usually abundant and well distributed throughout the year. Precipitation ranges from 40 to 60 inches.

Soil is a major factor in any plant community. Its properties become a major determining factor in hydric conditions and soils are therefore one of the criteria used to determine and define wetlands.

Soils of the study area are mostly Spodosols, Entisols, Alfisols, and Ultisols. There are three major land resource areas as defined by Caldwell and Johnson which occur within the study area. These are the North Florida Flatwoods, the Central Florida Ridge, and the Central and South Florida Flatwoods.

The soils of the North Florida Flatwoods in the study area are of the Centenary-Leon-Plummer, Chipley-Kurel-Lakeland, Ichetucknee-Chaires-Chiefland, and Plummer-Rutledge associations. These soils range from nearly level to gently sloping and are very poorly drained to excessively drained. They are generally sandy, some with loamy subsoils and/or limestone rock at 30 to 80 inches. This area lies on the Gulf coast and ranges inland to the Central Florida Ridge along the Suwannee River.

The soils of the Central Florida Ridge are almost exclusively well drained. Three exceptions to this are the Adamsville-Lochloosa-Sparr, the Blichton-Flemington-Kanapaha, and the Eureka-Emeralda-Terra Ciega associations. These three associations range from very poorly drained to somewhat poorly drained and are nearly level to strongly sloping. They are sandy soils with loamy subsoils, thin sandy soils with a clayey or loamy subsoil, or thick organic soils.

The Central and South Florida Flatwoods are found on both Gulf and Atlantic coasts and somewhat inland. The soils here are level to gently sloping and are very poorly to somewhat poorly drained. They are composed of sands, thin sandy layers over clayey or loamy subsoils over limestone rock, organic soils, or variable-texture mineral organic soils of tidal marshes. The soil associations here are the Bushnell-Boca, Coastal Beach and Dunes, Istokpoga-Samsula, Pomona-Wauchula-Placid, Riviera-Winder, and Tidal Marsh and Tidal Swamp associations.

Map Preparation:

Wetland classification for the NWI maps is in accordance with "Classification of Wetlands and Deepwater Habitats of the United States" by L.M. Cowardin, et. al., 1979.

Wetland classification and delineations were produced by photo interpretation of high level aerial photography. The photography used was NHAP color infrared at a scale of 1:58,000. The photography was taken during January, February and March 1983 and February and March 1984. To correctly classify the wetlands, ground truthing, soil surveys, and input from regional USFWS personnel were used to relate various photographic signatures to actual wetland identification and classification.

Collateral data included U.S.G.S. topographic maps (7.5 minute series) SCS soil surveys, climate, and vegetation information.

User Caution:

The map documents were prepared primarily by stereoscopic analysis of high altitude aerial photographs. Wetlands were identified on the photographs based on vegetation, visible hydrology, and geography. The aerial photographs typically reflected conditions during the specific year and season when they were taken. In addition, there is a margin of error inherent in the use of aerial photographs. Thus a detailed, on-the-ground and historical analysis of a single site may result in revision of the wetland boundaries established through photographic interpretation. In addition, some small wetlands and those obscured by dense forest cover may not be included on the map document.

Federal, state, and local regulatory agencies with jurisdiction over wetlands may define and describe wetlands in a different manner than that used in this inventory. There is no attempt, in either the design or products of this inventory, to define limits of proprietary jurisdiction of any federal, state, or local government or to establish the geographical scope of regulatory programs of government agencies. Persons intending to engage in activities involving modifications within or adjacent to wetland areas should seek the advice of appropriate federal, state, or local agencies concerning specific agency regulatory programs and proprietary jurisdictions that may affect such activities.

Changes in the landscape and/or land use could have occurred since the time of photography. Therefore, some discrepancies between the wetland map and current field conditions may exist. Any questions regarding wetland omissions, inclusions, or errors should be brought to the attention of the Regional Wetlands Coordinator, Region 4. The Project Officer for this wetland map is John Hefner, Regional Wetlands Coordinator, U.S. Fish and Wildlife Service, Region 4, R.P. Russell Federal Building, 75 Spring Street, S.W., Atlanta, Georgia 30303. Aerial photo interpretation was completed by Martel Laboratories, Inc., St. Petersburg, Florida. Maps were prepared by NWI National Team in St. Petersburg, Florida.

Wetlands and Deepwater Habitats:

Wetland habitats fall within the Marine, Estuarine, Palustrine, Lacustrine, and Riverine Systems. Deepwater habitats are areas which are permanently flooded and lying below the deepwater boundary of wetlands. These areas have surface water which is permanent and often deep and are characterized by open water or floating vascular aquatic bed on the photography. These deepwater habitats occur in the Marine, Estuarine, Lacustrine and Riverine systems but not in the Palustrine system.

Characteristics of NWI Wetland Systems:

Marine System:

This system consisted of open water and unconsolidated shore (beaches). The beach areas were split more or less evenly into two zones of upper beach (M2USP) and lower beach (M2USN). Marine beaches occurred on the Atlantic side of the study area only.

Estuarine System:

The estuarine system consisted of many types of wetlands ranging from open water to forested. Open water areas were found in the Gulf of Mexico and the adjacent salt marsh as well as sections of the intracoastal waterway on the Atlantic Coast.

The unconsolidated shore was found to be areas of intertidal sands and muds adjacent to open water as well as within the salt marsh. Water regimes for this community ranged from irregularly exposed to irregularly flooded (M, N, and P).

Emergent areas were composed largely of Juncus roemerianus with Spartina spp. in the lower areas near the water. In most cases the break could not be made accurately between these zones and therefore both zones were lumped and given the unknown water regime. In the field, areas composed mainly of Juncus roemerianus should be considered irregularly flooded. Spartina spp. should be considered regularly flooded.

Scrub-Shrub communities of mangrove were encountered around Cedar Key (the apparent northern limit of the Gulf coast) and also near the northern edge of the study area on the east coast. Most mangroves are extremely frost damaged and dead to the roots from the freezes of the winter of 1984. There is evidence of regrowth occurring, however, and areas were mapped as SS3, not SS5.

Coastal palm hammocks made up the forested component of the estuarine system. Species present here were cabbage palm, southern live oak, live oak, scattered pines and wax myrtle. This community was labeled E2FO3/4P or E2FO4/3P. There were many estuarine reef systems shown on topographic maps which were either too small to delineate or did not show up reliably on the photography. One such area is around Cedar Key. The many oyster reefs here were visible on the photography but were too small to be delineated at the scale of mapping being used.

Riverine System:

The riverine system contained both tidal and lower perennial subsystems. Examples of tidal rivers (at least in part) are the Steinhatchee, Suwannee, and St. Johns. The lower perennial rivers were rather numerous and generally were small to moderately sized. An example of this type is the Oklawaha River.

Riverine aquatic bed communities were mainly composed of floating vascular plants such as water hyacinth and water lettuce. These areas were classed as AB4 with either the H or V (permanent and permanent-tidal, respectively) water regimes. Drainage ditches which were large enough to be delineated were classified as R2OWHx.

Submergent rooted vascular communities are represented in many of the spring-fed and clear water rivers and streams. These will generally be delineated as R2OW/AB3H and will typically include some floating leaved rooted vascular plants as well. Submerged rooted vascular species here were mainly Vallisneria americana, Ceratophyllum demersum, Cabomba sp., and Hydrilla verticillata.

Lacustrine System:

There are many lakes of all sizes in the study area ranging from the very large Lake George in the Ocala National Forest to very small (only just large enough to qualify by definition) unnamed representative lakes.

Lake marshes were composed of rooted vascular aquatic bed. Species present in these communities were mainly water lilies and spatterdock with some Hydrilla verticillata and other submergent rooted species. These areas were classified as L2AB3H.

There were areas of submerged rooted vascular aquatic bed but as with the riverine system these do not show up well and are infrequently delineated. When delineated they will be classed as L2OW/AB3H.

Palustrine System:

Ponds, palustrine open water areas, were found throughout the study area. These consisted of open water areas without apparent vegetation as well as shallower areas showing definite vegetation. The vegetated areas contained species of grasses, sedges, and rushes, as well as Sagittaria sp., Pontederia sp., Typha sp., and aquatics such as Nymphaea spp. and Nuphar luteum.

Aquatic beds were rooted and floating. The predominant areas were rooted and contained Nymphaea spp. and Nuphar luteum as the dominant species. Floating aquatic beds were composed mainly of water hyacinth and water lettuce with varying amounts of duckweed and Salvinia sp. Submergent rooted vascular aquatic beds were also encountered, but rarely showed up reliably on the photography.

Emergents were mainly species of grasses (Panicum sp.), sedges (Carex sp.) and rushes (Juncus sp.) with Rhynchospora sp., Typha sp., Utricularia sp., Proserpinaca sp., Bacopa sp., Sagittaria sp., Pontederia sp., Hydrocotyle sp., and Polygonum sp. These occurred in temporary depressions through semipermanent and even into permanent water.

Scrub-Shrub communities were composed of St. John's wort (Hypericum sp.). This occurred in ponded prairie areas with emergents and is usually called SS3/EM1F or C. Other scrub-shrub wetlands were composed of willow, wax myrtle, small bays, Ludwigia sp., or Cephalanthus sp. Occasional areas had stunted or dwarf cypress.

Forested wetlands ranged from pure cypress to mixtures of many types of trees. Pure stands of cypress were encountered with regularity in the eastern and central portions of the study area. In the western portions and Gulf coastal maps, cypress rarely occurred as pure stands but rather in mixture with blackgum (Nyssa sylvatica var. biflora). In areas where cypress occurred in mixture with Nyssa sylvatica var. biflora the exact mixture is often undeterminable from aerial photography and these communities are therefore classified as PFO6. Some of these areas may be a component of communities near the Gulf of Mexico but were fairly common in the central and eastern portions of the study area. There are some areas throughout the study area of maple and ash, as well as some areas of oaks which occur in temporary to-seasonal and, very occasionally, semipermanently flooded wetlands. Hydric hammocks are special communities of the Gulf coast and are encountered occasionally along the Atlantic coast of the study area.

Although no significant number of saturated communities were encountered or mapped it is very probable that the northern boundary of the study area will have examples of this type of community. There are "bogs" and savannahs in adjacent study areas to the north and it has been suggested by others that this northern boundary may be some kind of physiographic limit to these saturated communities with more seasonal or semipermanently flooded "prairies" to the south.

Water Regimes

Hydrologic characteristics are an important aspect of wetlands. The following water regimes describe in general terms the duration and timing of surface inundation, as well as ground-water fluctuations.

Non-Tidal:

Temporarily Flooded (A) - Surface water present for brief periods during the growing season, but water table usually lies well below the surface.

Saturated (B) - Surface water is seldom present, but substrate is saturated to the surface for extended periods during the growing season.

Seasonally Flooded (C) - 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 very variable, ranging from a saturated condition to one in which the water table is well below the ground's surface.

Semipermanently Flooded (F) - Surface water persists throughout the growing season in most years. Land surface is normally saturated when water level drops below soil surface.

Intermittently Exposed (G) - Surface water is present throughout the year except in years of extreme drought.

Permanently Flooded (H) - Water covers land surface throughout the year in all years.

Tidal:

Subtidal (L) - The substrate is permanently flooded with tidal water.

Irregularly Exposed (M) - The land surface is exposed by tides less often than daily.

Regularly Flooded (N) - Tidal water alternately floods and exposes the land surface at least once daily.

Irregularly Flooded (P) - Tidal water floods the land surface less often than once daily.

Unknown (U) - Tidal water floods the land surface at a periodicity undeterminable from the information available during mapping.

Fresh Tidal:

Permanent-tidal (V) - Water covers the land surface throughout the year in all years with tidal action having an effect on the ecosystem.

Semipermanent-tidal (T) - 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. Tidal action has an effect on flooding.

Seasonal-tidal (R) - Surface water is present for extended periods especially early in the growing season, but is absent by the end of the season in most years. When surface water is absent, the water table is often near the land surface. Tidal action has an effect on flooding.

Temporarily-tidal (S) - Surface water is present for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the season. Tidal action has an effect on flooding. Plants that grow both in uplands and wetlands are characteristic of this regime.

Special modifiers included on these NWI maps, where applicable, are:

Partly Drained (d): The water level has been artificially lowered, but the area is still classified as wetland because soil moisture is sufficient to support hydrophytes. Drained areas are not considered wetland if they can no longer support hydrophytes.

Diked/Impounded (h): Created or modified by a barrier, dike, or dam which obstructs the inflow or outflow of water.

Excavated (x): Lies within a basin or channel excavated by man.

Bibliography:

- Bailey, Robert C., 1960. Description of the Ecoregions of the United States. U.S. Department of Agriculture Forest Service. Miscellaneous Publication No. 1391.
- Caldwell, R.E. and R.W. Johnson. 1982. General Soil Map Florida. U.S. Department of Agriculture, Soil Conservation Service.
- Cowardin, L.M.; V. Carter; F.C. Golet and E.T. LaRue, 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, U.S. Fish and Wildlife Service. Biological Services Program, Washington D.C., 103 p.
- Guide to Selected Florida Wetland Plants and Communities. Unpublished. U.S. Army Corps of Engineers, Jacksonville District, Regulatory Division. P.O. Box 4970, Jacksonville, Florida.
- Harrar, Ellwood S. and J. George Harrar. 1962. Guide to Southern Trees. Dover Publications, Inc.
- Petrides, George A. 1972. A Field Guide to Trees and Shrubs. Second Edition. Houghton Mifflin Company.
- Soil Survey of Clay County, Florida. Unpublished. U.S. Department of Agriculture, Soil Conservation Service.
- Soil Survey of Marion County, Florida. _____. U.S. Department of Agriculture, Soil Conservation Service.
- Soil Survey of Ocala National Forest, Florida. _____. U.S. Department of Agriculture, Soil Conservation Service.
- Soil Survey of St. John's County, Florida. October 1983. U.S. Department of Agriculture, Soil Conservation Service.
- Soil Survey of Volusia County, Florida. _____. U.S. Department of Agriculture, Soil Conservation Service.
- Wetland Plants of the Eastern United States, 1977. U.S. Army Corps of Engineers, North Atlantic Division. Publication number NADP 200-1-1.

TABLE 1

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
M10W	Marine, subtidal, open water	Atlantic Ocean or Gulf of Mexico	Open Water
M2US	Marine, intertidal, unconsolidated shore	Beaches. Atlantic Ocean only	Sand
E10W	Estuarine, subtidal, open water	Intracoastal waterway, Gulf of Mexico, bays and inlets	Open water
E2US	Estuarine, intertidal, unconsolidated shore	Beaches, bars, flats	Sand or mud
E2EM1	Estuarine, intertidal, emergent, persistent	Salt marsh	<u>Spartina alterniflora</u> (smooth cordgrass) <u>Juncus roemerianus</u> (black needle rush)
E2SS3	Estuarine, intertidal, scrub-shrub, broad-leaved evergreen	Mangrove or high marsh shrub	<u>Rhizophora mangle</u> (red mangrove) <u>Avicennia germinans</u> (black mangrove) <u>Laguncularia racemosa</u> (white mangrove) <u>Conocarpus erecta</u> (buttonwood) <u>Baccharis halimifolia</u> (saltbush) <u>Iva frutescens</u> (marsh elder)
E2SS4	Estuarine, intertidal, forest, broad-leaved evergreen/needle-leaved evergreen	coastal palm hammock	<u>Coccothrinax</u> (cabbage palm) <u>Pinus spp.</u> (pines) <u>Juniperus silicicola</u> (southern red cedar)

TABLE 1 (continued)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
R10A	Riverine, tidal, open water	Tidal rivers or rivers	Open Water
R1AB4	Riverine, tidal, aquatic bed, floating vascular	Tidal rivers or rivers (floating mat)	<u>Eichhornia crassipes</u> (water hyacinth) <u>Pistia stratiotes</u> (water lettuce) <u>Lemna spp.</u> (duckweed) <u>Salvinia sp.</u> (water fern)
R20W	Riverine, lower perennial, open water	Rivers	Open water
R2AB4	Riverine, lower perennial, aquatic bed, floating vascular	Rivers, drainage ditches (floating mats)	(see R1AB4)
R2AB3	Riverine, lower perennial, aquatic bed, rooted vascular	Rivers, clearwater rivers (spring runs) drainage ditches	<u>Nuphar luteum</u> (spatterdock) <u>Nymphaea spp.</u> (water lilies) <u>Vallisneria americana</u> (tape grass)
L10W	Lacustrine, limnetic, open water	Lakes	Open water
L1AB4	Lacustrine, limnetic, aquatic bed, floating vascular	Lakes (floating mats)	(See R1AB4)
L2AB3	Lacustrine, littoral, aquatic	Lakes, lake marshes	<u>Nuphar luteum</u> (spatterdock) <u>Nymphaea spp.</u> (water lilies) <u>Hydrilla verticillata</u> (hydrilla) <u>Ceratophyllum demersum</u> (horn wort) <u>Utricularia spp.</u> (bladderworts)

TABLE 1 (continued)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
POW	Palustrine, open water	Ponds	Open water
PAP4	Palustrine, aquatic bed, floating vascular	Ponds	(See R1AB4)
PAB3	Palustrine, aquatic bed, rooted vascular	Ponds, deep marshes	(See L2AB3)
PAB3/EM1	Palustrine, aquatic bed, rooted vascular/emergent, persistent	Lake marshes, pond edges, shallow ponds, deep marshes	<u>Nymphaea spp.</u> (water lilies) <u>Nuphar luteum</u> (spatterdock) <u>Pontederia cordata</u> (pickerel weed) <u>Carex spp.</u> (sedges) <u>Panicum hemitomon</u> (maidencane)
POW/EM1	Palustrine, open water/emergent, persistent	Shallow ponds	Open water <u>Pontederia cordata</u> (pickerel weed) <u>Panicum hemitomon</u> (maidencane) <u>Carex spp.</u> (sedges)
PEM1/AB3	Palustrine, emergent, persistent/aquatic bed, rooted vascular	Shallow marshes and ponds	<u>Panicum hemitomon</u> (maidencane) <u>Cladium jamaicense</u> (sawgrass) <u>Polygonum spp.</u> (smartweeds) (pickerel weed) <u>Sagittaria spp.</u> (arrowheads) <u>Nymphaea spp.</u> (water lilies) <u>Nuphar luteum</u> (spatterdock)

TABLE 1 (continued)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
PEM1	Palustrine, emergent, persistent	Ponded prairies, marshes, wet prairies, depressions, drainage ways	<u>Panicum hemitonon</u> (maidencane) <u>Cladium jamaicense</u> (sawgrass) <u>Typha spp.</u> (cattails) <u>Pontederia cordata</u> (pickerel weed) <u>Sagittaria spp.</u> (arrowheads) <u>Rhynchospora spp.</u> (beak rushes) <u>Carex spp.</u> (sedges) Unidentified grasses
PEM1/SS3	Palustrine, emergent, persistent/scrub-shrub, broad-leaved evergreen	Ponded prairies, wet prairies	<u>Panicum hemitonon</u> (maidencane) <u>Amphicarpum muhlenbergianum</u> (little blue maidencane) <u>Andropogon spp.</u> (bluestems) Unidentified grasses <u>Carex spp.</u> (sedges) <u>Rhynchospora spp.</u> (beak rushes) <u>Juncus spp.</u> (rushes) <u>Hypericum fasciculatum</u> (St. John's wort)

Table 1 (continued)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
PFM1/SS1	Palustrine, emergent, persistent/scrub-shrub, broad-leaved deciduous	Depressions, marshes	<u>Andropogon spp.</u> (bluestems) <u>Panicum hemitomon</u> (maidencane) <u>Cladium jamaicense</u> (sawgrass) <u>Typha spp.</u> (cattails) <u>Salix sp.</u> (willow) <u>Carex spp.</u> (sedges) <u>Rhynchospora spp.</u> (beak rushes) <u>Juncus spp.</u> (rushes)
PFO1	Palustrine, forested, broad-leaved deciduous	Swamps, depressions, drainage ways	<u>Acer rubrum</u> (red maple) <u>Nyssa sylvatica var. biflora</u> (blackgum) <u>Fraxinus sp.</u> (ash) <u>Quercus laurifolia</u> (laurel oak) <u>Quercus nigra</u> (water oak) <u>Liquidambar styraciflua</u> (sweetgum)
PFO1/2	Palustrine, forested, broad-leaved deciduous/needle-leaved deciduous	Swamps and river floodplains	<u>Acer rubrum</u> (red maple) <u>Fraxinus sp.</u> (ash) <u>Taxodium distichum</u> (cypress)
PFO1/3	Palustrine, forested, broad-leaved deciduous/broad-leaved evergreen	Drainageways and hammocks	<u>Quercus laurifolia</u> (laurel oak) <u>Quercus nigra</u> (water oak) <u>Liquidambar styraciflua</u> (sweetgum) <u>Sabal palmetto</u> (cabbage palm)

TABLE 1 (continued)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
PF01/7	Palustrine, forested, broad-leaved deciduous/evergreen	Edges of drainage-ways, floodplains and depressions	<u>Quercus laurifolia</u> (laurel oak) <u>Quercus nigra</u> (water oak) <u>Acer rubrum</u> (Red maple) <u>Liquidambar styraciflua</u> (sweet-gum) <u>Pinus sp.</u> (pines) <u>Gordonia lasianthus</u> (loblolly bay) <u>Magnolia virginiana</u> (sweet bay) <u>Persea borbonia</u> (red bay)
PF02	Palustrine, forested, needle-leaved deciduous	Cypress domes, strands, sloughs, or swamps	<u>Taxodium distichum</u> (cypress)
PF02/4	Palustrine, forested, needle-leaved deciduous/needle-leaved evergreen	Depressions	<u>Taxodium distichum</u> (cypress) <u>Pinus spp.</u> (pines)
PF03	Palustrine, forested, broad-leaved evergreen	Bayheads, bay swamps	<u>Gordonia lasianthus</u> (loblolly bay) <u>Magnolia virginiana</u> (sweet bay) <u>Persea borbonia</u> (red bay)
PF03/4	Palustrine, forested, broad-leaved evergreen/needle-leaved evergreen	Depressions and edges of drainage-ways, sloughs, and floodplains	<u>Gordonia lasianthus</u> (loblolly bay) <u>Magnolia virginiana</u> (sweet bay) <u>Persea borbonia</u> (red bay) <u>Pinus spp.</u> (pines)
PF04	Palustrine, forested, needle-leaved evergreen	Low pine flatwoods, pine flatwoods	<u>Pinus spp.</u> (pines)

TABLE 1 (contin)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
PFO6	Palustrine, forested, deciduous	Swamps, drainage-ways, depressions, sloughs, river swamps	<u>Taxodium distichum</u> (cypress) <u>Nyssa sylvatica</u> var. <u>biflora</u> (blackgum) <u>Acer rubrum</u> (red maple) <u>Fraxinus sp.</u> (ash) <u>Quercus laurifolia</u> (laurel oak) <u>Quercus nigra</u> (water oak) <u>Liquidambar styraciflua</u> (sweetgum)
PFO6/3	Palustrine, forested, deciduous/broad-leaved evergreen	Swamps, sloughs, river floodplains	<u>Taxodium distichum</u> (cypress) <u>Nyssa sylvatica</u> var. <u>biflora</u> (blackgum) <u>Acer rubrum</u> (red maple) <u>Gordonia lasianthus</u> (loblolly bay) <u>Magnolia virginiana</u> (sweet bay) <u>Persea borbonia</u> (red bay) <u>Sabal palmetto</u> (cabbage palm) <u>Salix sp.</u> (willow) <u>Liquidambar styraciflua</u> (sweetgum) <u>Fraxinus sp.</u> (ash)

TABLE 1 (continued)

NWI CODE	NWI DESCRIPTION	COMMON DESCRIPTION	VEGETATION SUBSTRATE
PFO6/7	Palustrine, forested, deciduous/ evergreen	Hammocks	<u>Taxodium distichum</u> (cypress) <u>Quercus laurifolia</u> (laurel oak) <u>Quercus nigra</u> (water oak) <u>Liquidambar styraciflua</u> (sweetgum) <u>Acer rubrum</u> (red maple) <u>Nyssa sylvatica</u> var. <u>biflora</u> (blackgum) <u>Fraxinus sp.</u> (ash) <u>Pinus spp.</u> (pines) <u>Sabal palmetto</u> (cabbage palm) <u>Gordonia lasianthus</u> (loblolly bay) <u>Magnolia virginiana</u> (sweet bay) <u>Persea borbonia</u> (red bay)
PFO7/2	Palustrine, forested, evergreen/ needle-leaved deciduous	Depressions	<u>Pinus spp.</u> (pines) <u>Gordonia lasianthus</u> (loblolly bay) <u>Magnolia virginiana</u> (sweet bay) <u>Persea borbonia</u> (red bay) <u>Taxodium distichum</u> (cypress)
PFO6/EM1	Palustrine, forested, deciduous/ emergent, persistent	Edges of lakes	<u>Taxodium distichum</u> (cypress) <u>Nyssa sylvatica</u> var. <u>biflora</u> (blackgum) <u>Panicum hemitomon</u> (maidencane) <u>Polygonum spp.</u> (smartweeds) <u>Carex spp.</u> (sedges)