

NATIONAL WETLANDS INVENTORY
PHOTOINTERPRETATION CONVENTIONS

FOR

South Carolina

Southeastern Mixed Forest Province

Field Work Conducted Week of April 28, 1997

The 1:100,000 Map Units of:

Augusta NE, Spartanburg NE, Spartanburg SE

U.S. Fish and Wildlife Services
Atlanta, Georgia

September, 1997

Photographic Interpretation Conventions

I. Riverine System

The R2UBH classification is used for permanent rivers in the work area. The photo signature is open water. Most of the rivers in this area have a low gradient, slow water velocity, and well developed floodplains. However, a few rivers in the work area have a slightly steeper gradient with less developed floodplains, but still fall into the R2UBH classification. Two examples of rivers in this work area are the Lynches River and the Nasty Branch River. Portions of perennial and intermittent streams obscured by the tree canopy will be classified in the Palustrine System. Sand and mud flats along the R2UBH rivers will be classified R2USC and R2USA. Their signatures will vary from bluish-gray to white. Intermittent streams with little or no water visible will be classified R4SBC if they meet the size requirement. The stream bed may be blue, blue-gray, or white. These R4SBC wetlands must be clearly visible(at least pen-width in size on photo) to be delineated. R4SBC will not be a common classification used in this area.

II. Lacustrine System

Lakes and reservoirs larger than 20 acres in the work area will be classified as L1UBH. One example is Lake Robinson. This is the largest lake in the work area. If a lake is impounded it will carry one of two modifiers. When a beaver dam impedes water flow and creates a pond, it will carry the b modifier. If a road, natural feature, or manmade object otherwise impounds the lake or impedes water flow, it will carry the h modifier.

A) The signature of L1UBH, L1UBHh, or L1UBHb is open water (signature color ranges from various shades of blue to black).

B) Flats, non-vegetated associated with reservoirs over 20 acres will be classified as a L2USAh and L2USCh. The signature can range from white to light blue (L2USAh) to medium blue-gray (L2USCh).

C) Water filled large mining pits will be classified as L1UBHx. Signatures are light blue to medium blue polygons surrounded by white, excavated areas.

D) Aquatic beds will be classified as L2AB3H or L2AB4H. The signature shows grayish-green, brownish-green, or bluish-green. The community includes parrot feather (Myriophyllum aquaticum) and water lilies (Nymphaea spp.). The signature for floating vascular beds (L2AB4H) is a whitish-pink to pinkish-red and is usually duckweed (Lemna spp.).

III. Palustrine System

Palustrine wetlands comprise the majority of wetland acreage in the study area. The Palustrine System includes all non-tidal wetlands dominated by trees, shrubs, persistent emergents, and all such wetlands that occur in tidal areas where salinity due to ocean-derived salts is below 0.5 percent. It also includes wetlands lacking such vegetation, which are less than 20 acres and less than 2 meters in depth.

A) PFOIA:

Palustrine, Forested, Broad-Leaved Deciduous, Temporarily Flooded.

These areas consist of: red maple (*Acer rubrum*), box elder (*Acer negundo*), green ash (*Fraxinus pennsylvanica*), willow oak (*Quercus phellos*), and elm (*Ulmus spp.*).

This community type is usually found in river floodplains and along natural drainages. In leaf off photography, the deciduous trees generate a gray-green signature with the possibility of a visible semi-evergreen or evergreen understory. This semi-evergreen understory is often a smooth textured, pinkish-red signature.

B) PFOIB:

Palustrine, Forested, Broad-Leaved Deciduous, Saturated. This classification includes the species: tulip poplar (*Liriodendron tulipifera*), red maple (*Acer rubrum*), sweetgum (*Liquidambar styraciflua*), black gum (*Nyssa sylvatica*), swamp tupelo (*Nyssa sylvatica* 'biflora') and willow oak (*Quercus phellos*).

This community type is usually found on slopes, in Carolina bays, and along many of the study area's natural drainages. This community, with both the deciduous and evergreen species, generates a bluish-green, pinkish-red, or brownish-red signature. The deciduous vegetation generates a bluish-green to brownish signature. The evergreen or semi evergreen tree crowns generate pinkish-red signature. The varying species composition found in this vegetative community generates a diversity of signature tones.

C) PFOIC:

Palustrine, Forested, Broad-Leaved, Deciduous, Seasonally Flooded.

These areas include: sweetgum (*Liquidambar styraciflua*), red maple (*Acer rubrum*), willows (*Salix spp.*), river birch (*Betula nigra*), tulip poplar (*Liriodendron tulipifera*), and swamp cottonwood (*Populus heterophylla*).

This community is usually found along natural drainages with developed floodplains. These deciduous trees yield a darker gray-green signature than the PFO1A with no evident evergreen understory signature.

D) PFO1F:

Palustrine, Forested, Broad-Leaved Deciduous, Semipermanently Flooded. Vegetation in these areas include red maple (Acer rubrum), ironwood (Carpinus caroliniana), willow oak (Quercus phellos), willow (Salix spp.), bald cypress (Taxodium distichum), sweetgum (Liquidambar styraciflua), Alder (Alnus serrulata), water tupelo (Nyssa aquatica), and black gum (Nyssa sylvatica).

This community type usually occurs along river floodplains, oxbows, sloughs, and ponds impounded by beaver dams. Standing water is usually present underneath the tree canopy. This deciduous vegetation returns a dark gray-blue to dark black signature. At these sites, little to no understory is visible due to the presence of standing water.

E) PFO2C:

Palustrine, Forested, Needle-Leaved Deciduous, Seasonally Flooded. This classification refers to bald cypress (Taxodium distichum) stands that are seasonally flooded.

Bald cypress in seasonally flooded areas are usually found in rivers, floodplains and certain depressional areas in the work area. In leaf-off photography, the bald cypress crown signatures are usually white-gray with a fluffy texture.

F) PFO2F:

Palustrine, Forested, Needle-Leaved Deciduous, Semipermanently Flooded. This classification refers to bald cypress (Taxodium distichum). Bald cypress is found in semi permanently flooded areas that are usually found in oxbows and sloughs. Their crown signatures that are usually white-gray signatures with fluffy texture in leaf-off photography. Unlike the PFO2C, the PFO2F may have standing water in the signature.

G) PFO3B:

Palustrine, Forested, Broad-Leaved, Evergreen, Saturated. The dominant species found in this community are: sweet bay (Magnolia virginiana), red bay (Persea borbonia), willow oak (Quercus phellos), and water oak (Quercus nigra).

These areas will be found in saturated areas of river flood plains and in Carolina bays. In leaf-off photography, the broad-leaved evergreen trees will return a light pink signature with large, fluffy crowns.

H) PFO4A:

Palustrine, Forested, Needle-Leaved Evergreen, Temporarily Flooded. The dominant cover type was usually loblolly pine (Pinus taeda), and long leaf pine (Pinus palustris). The loblolly pine and longleaf pine are usually planted in rows in upland sites for timber purposes. The pines produce a reddish-brown, conical signature in open strands of river floodplains.

I) PFO4B:

Palustrine, Forested, Needle-Leaved Evergreen, Saturated. The dominant species found in this community is usually pond pine (Pinus serotina). This community is found in organic soils in river floodplains or Carolina bays. The saturated pine in depressional areas produce a reddish-gray to brownish-gray conical signature in river flood plains. Pines grown in Carolina bays often produce stunted growth which generates a small circle of uneven texture on the crown signature.

J) PSS1A:

Palustrine, Scrub-Shrub, Broad-Leaved, Deciduous, Temporarily Flooded. This classification consists of juvenile species less than 20 feet in height such as willow oaks (Quercus phellos), red maple (Acer rubrum), Chinese privet (Ligustrum sinensis), and willows (Salix spp.).

This signature is often found in river floodplains or along river banks. In leaf off photography, the deciduous vegetation usually generates a slightly rough textured gray-green or brownish-green signature. Minority evergreen or semi-evergreen vegetation in the area generates a few rough textured, pinkish-red crowns.

K) PSS1B:

Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Saturated. This classification includes Juvenile species such as black gum (Nyssa sylvatica), red maple (Acer rubrum), and greenbriar (Smilax spp.). This vegetation is usually found near beaver dams, Carolina bays, and saturated river flood plains. In leaf off photography, this community type generates a rough textured, bluish-green, pinkish-red, or brownish-red signature.

M) PSS1C:

Palustrine, Scrub-Shrub, Broad-Leaved, Deciduous, Seasonally Flooded. Juvenile species include: sweet gum (Liquidambar styraciflua), red maple (Acer rubrum), willows (salix spp.), river birch (Betula nigra), tulip poplar (Liriodendron tulipifera) and swamp cottonwood (Populus heterophylla). . This community type is found in rivers and Carolina bays. In leaf off photography, the higher percentage of deciduous vegetation usually generates a slightly rough textured, gray-green or brownish-green signature, slightly darker than PSS1A. The minority evergreen and semi-evergreen vegetation yields slightly rough textured, pinkish-red crown signatures.

N) PSS1F:

Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Semipermanently Flooded. Juvenile species include: red maple (Acer rubrum) and willow (Salix spp). This community type usually occurs on vegetated river banks with standing water, oxbows, sloughs, and vegetated lakes impounded by small beaver dams. This deciduous vegetation appears rough textured, with a dark gray-blue to dark black signature in leaf-off photography. Usually small standing water pockets generate dark gray to black signature visible through the vegetation canopy.

O) PSS3A:

Palustrine, Scrub-Shrub, Broad-Leaved Evergreen, Temporarily Flooded. The dominant cover type in this classification are red bay (Persea borbonia), sweet bay (Magnolia virginiana), willow oak (Quercus phellos), and water oak (Quercus nigra). This community type is very uncommon and many times is associated with drained or ditched areas to reduce water levels (classified with a “d” modifier). In leaf-off photography, this community type generates a pinkish-red signature with a rough texture.

P) PSS3B:

Palustrine, Scrub-Shrub, Broad-Leaved, Evergreen, Saturated. The dominant cover type in this classification is the same as PSS3A except the understory vegetation will be wetter. This community type is found in saturated areas of river flood plains and is usually not drained. In leaf-off photography, the dominant signature will be lighter pink than PF03A. Again, the signature will be rough in texture.

Q) PSS4A:

Palustrine, Scrub-Shrub, Needle-Leaved Evergreen, Temporarily Flooded. The dominant vegetation type is loblolly pine (Pinus taeda) and longleaf pine (Pinus palustris). Loblolly and longleaf pines are usually found in upland plantations. This community type is very uncommon and many times is associated with drained or ditched areas to reduce water levels (classified with a “d” modifier). Juvenile loblolly or longleaf pine plantations generate a green background signature with small red rows or dots. As they get older, loblolly and longleaf pine generate a rough-textured brownish-red signature.

R) PSS4B:

Palustrine, Scrub-Shrub, Needle-Leaved Evergreen, Saturated. The dominant tree in this community is pond pine (Pinus serotina). The community type is often found in organic soils along rivers. The saturated juvenile pines produce a reddish, gray-green to brownish-gray green. Pond pines (Pinus serotina) generate a lighter orange-pink signature with rough texture.

S) PEMIA:

Palustrine, Emergent, Persistent, Temporarily Flooded. The vegetation consists of wool grass (Scirpus cyperanus), soft rushes (Juncus effuses), Virginia creeper (Parthenocissus quinquefolia), and trumpet creeper (Campsis radicans). This vegetation is found around or in lakes with fluctuating seasonal water elevation. This plant community generates a smooth textured, brownish-green to grayish-green signature.

T) PEMIC:

Palustrine, Emergent, Persistent, Seasonally Flooded. The vegetation consists of Virginia creeper (Partenocissus quinquefolia) and net veined chain fern (Woodwardia areolata). This vegetation is found around or in lakes with seasonal water elevation fluctuations. The signature will be a smooth textured, and a darker brownish-green to grayish-green. Some signatures also have white signatures which is indicative of dead emergents.

U) PEMIF:

Palustrine, Emergent, Persistent, Semipermanently Flooded. This community consists mainly of: sedges (Carix spp.), iris (Iris spp.), spatterdock (Nuphar luteum), royal fern (Osmunda regalis), arrowhead (Sagitaria spp.), and bulrushes (Scirpus spp.). This community is found

near ponds. This vegetation usually produces a smooth dark, gray-green signature with open water.

V) PAB3F/PAB3H:

Aquatic Bed, Rooted Vascular, Semipermanently/Permanently Flooded. The main species included water lilies (Nymphaea spp.) and parrot feather (Myriophyllum aquaticum). This community is usually found in impounded lakes or in beaver ponds. The vegetation generates a smooth textured, blackish-green or whitish-pink signature.

W) PAB4F/PAB4H:

Aquatic Bed, Floating Vascular, Semipermanently/Permanently Flooded. Duckweed (Lemna spp.) is the vegetation that dominated these sites. This community is usually found in impounded lakes or in beaver ponds. The vegetation signature is a shiny pink.

General Conventions

- 1) Special modifiers for our work area include (b) beaver, (d) partially drained/ditched, (h) diked/impounded, and (x) excavated.
- 2) Sewage treatment facilities, without an aquatic bed present, will be labeled PUBKx. When an aquatic bed is present, sewage treatment plants will be labeled PAB3Kx or PAB4Kx.
- 3) Water drainages, such as drainage ditches and small streams, will be classified as linear wetlands (must be pen-width in size).
- 4) The photography will have its uplands mapped according to the Anderson's A Land Use and Land Cover Classification System for use with Remote Sensor Data (See next two pages).

South Carolina Land Use and Land Cover Classification System(Anderson et.al.1976)

Level I		Level II
1 Urban or Built-up Land	11	Residential
	12	Commercial and Services
	13	Industrial
	14	Transportation, Communications, and Utilities
	15	Industrial and Commercial Complex
	16	Mixed Urban or Built-Up Land
	17	Other Urban or Built-Up Land
2 Agricultural Land	21	Cropland and Pasture
	22	Orchards, Groves, Vineyards, Nurseries, and Ornamental
	23	Confined Feeding Operations
3 Rangeland	31	Herbaceous Rangeland
	32	Shrub and Brush Rangeland
4 Forest Land	41	Deciduous Forest Land
	42	Evergreen Forest Land
	42p	Plantation Pine
	43	Mixed Forest Land
5 Water	NWI	Classification System
6 Wetland	NWI	Classification System
7 Barren Land	71	Dry Salt Flats
	72	Beaches
	73	Sandy Areas other than Beaches
	74	Bare Exposed Rock
	75	Strip Mines, Quarries, and Gravel Pits
	76	Transitional Areas
	77	Mixed Barren Land
8 Tundra	81	Shrub and Brush Tundra
	82	Herbaceous Tundra
	83	Bare Ground Tundra
	84	Wet Tundra
	85	Mixed Tundra

SOUTH CAROLINA UPLAND

PI CONVENTIONS

AUGUSTA(NE) AND SPARTANBURG (NE AND SE)

1. Upland classification will utilize the system put forth in, A Land Use and Land Cover Classification System For Use With Remote Sensing Data, by James R. Anderson, Ernest e. Hardy, John T. Roach, and Richard E. Witmer.
2. Level I and Level II will be used for all classes except for Water (5), and Wetland (6). The NWI classifications will be used for these classes. Other portions of the system, Tundra (8), and Perennial Snow or Ice (9), will not be utilized.
3. The minimum mapping unit for uplands will be 10 acres.
4. Transportation Corridors (14) will not be delineated except where they bisect a wetland. The section of the roadway that splits wetland will be delineated and classified. Primary state roads and interstate highways (indicated as red on topographic maps) will be included, however, there will be no attempt to delineate breaks for smaller roads. If the polygons were not classified, the surrounding upland classification would automatically be assumed to have caused the wetland break resulting in substantial false wetland acreage.
5. Long distance powerline cuts will not be included in the transportation, communications, and utilities section of the upland classification system states that "Long distance gas, oil, electric, telephone, water, or other transmission facilities rarely constitute the dominant use of the lands with which they are associated.
6. Soil surveys and topographic maps will be used as collateral data. Split classes will be used sparingly.
7. Wetland mapping will adhere to existing NWI mapping conventions.