SE Gap Analysis Project - Land Cover Legend

Map Value: 1   *NLCD Code: 11*   *NLCD Class: WATER*

SE-GAP Code: SEGAP111

SE-GAP Name: Open Water (Fresh)

SE-GAP Description: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, inland waters of streams, rivers, ponds and lakes.

Map Value: 2   *NLCD Code: 11*   *NLCD Class: WATER*

SE-GAP Code: SEGAP112

SE-GAP Name: Open Water (Brackish/Salt)

SE-GAP Description: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, coastal and near-shore estuarine and/or marine waters.

Map Value: 3   *NLCD Code: 11*   *NLCD Class: WATER*

SE-GAP Code: SEGAP113

SE-GAP Name: Open Water (Aquaculture)

SE-GAP Description: All areas of open water, generally less than 25% cover of vegetation or soil. Specifically, impoundments created for rearing commericial fish and invertebrate species, i.e aquatic livestock.

Map Value: 4   *NLCD Code: 21*   *NLCD Class: DEVELOPED OPEN SPACE*

SE-GAP Code: SEGAP211

SE-GAP Name: Developed Open Space

SE-GAP Description: Developed open areas that are primarily herbaceous (i.e. golf courses, road sides, parks, air fields).

Map Value: 5   *NLCD Code: 22*   *NLCD Class: LOW INTENSITY DEVELOPED*

SE-GAP Code: SEGAP220

SE-GAP Name: Low Intensity Developed

SE-GAP Description: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 20-49 percent of total cover. These areas most commonly include single-family housing units.

Map Value: 6   *NLCD Code: 23*   *NLCD Class: MEDIUM INTENSITY DEVELOPED*

SE-GAP Code: SEGAP230

SE-GAP Name: Medium Intensity Developed

SE-GAP Description: Includes areas with a mixture of constructed materials and vegetation. Impervious surfaces account for 50-80 percent of the total cover. These areas most commonly include single-family housing units.

Map Value: 7   *NLCD Code: 24*   *NLCD Class: HIGH INTENSITY DEVELOPED*

SE-GAP Code: SEGAP240

SE-GAP Name: High Intensity Developed

SE-GAP Description: Includes highly developed areas where people reside or work in high numbers. Examples include apartment complexes, row houses and commercial/industrial. Impervious surfaces account for 80 to100 percent of the total cover.

Map Value: 9   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES203.301
SE-GAP Name: Atlantic Coastal Plain Northern Sandy Beach
SE-GAP Description:

Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Coast, Beach (Substrate), Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system includes sparsely vegetated ocean beaches constituting the outermost zone of coastal vegetation ranging from northern North Carolina northward to the terminus of extensive sandy coastlines and the beginning of rocky coasts. Examples generally extend seaward from foredunes but may include flats behind breached foredunes. Although these habitats are situated just above the mean high tide limit, they are constantly impacted by waves and may be flooded by high spring tides and storm surges (Fleming et al. 2001). Constant salt spray and rainwater maintain generally moist conditions. Substrates consist of unconsolidated sand and shell sediments that are constantly shifted by winds and floods. Dynamic disturbance regimes largely limit vegetation to pioneering, salt-tolerant, succulent annuals. Cakile edentula ssp. edentula and Salsola caroliniana are usually most numerous and characteristic. Other scattered associates include Sesuvium maritimum, Polygonum glaucum, Polygonum ramosissimum var. prolificum, Suaeda linearis and Suaeda maritima, and Atriplex pentandra.

Map Value: 10   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES203.383
SE-GAP Name: Atlantic Coastal Plain Sea Island Beach
SE-GAP Description:

Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Coastal plain, Beach (Substrate)

Non-Diagnostic Classifiers:

Concept Summary: This system represents beaches and overwash flats in the Sea Island region of South Carolina and Georgia. The entire region is distinctive on the Atlantic Coast, and wave energy is generally lower here than any other point along the Atlantic Coast (Tanner 1960). Huge quantities of fine-textured sediments are deposited by alluvial rivers in the region, many of which drain relatively large interior areas of the Piedmont, where clay is an abundant by-product of weathering and erosion. Thus, as opposed to other beaches of the Atlantic Coast, these beaches are characterized by the prevalence of fine-textured sediments. In addition, the extensive Continental Shelf coupled with low wave energy contribute to a paucity of shell components of the beach substrates.

Map Value: 11   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES203.535
SE-GAP Name: Atlantic Coastal Plain Southern Beach
SE-GAP Description:

Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland, Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers:

Concept Summary: This beach system is found along the Atlantic Coast of extreme southern Georgia ranging into eastern Florida to approximately Cape Canaveral. Unlike Atlantic Coastal Plain Sea Island Beach (CES203.383) to the north, this system is subject to higher wave energy and a greater component of sand. Vegetation of this area is distinct from that further south along the coast of Florida (Johnson and Muller 1993).

Map Value: 12   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES203.266
SE-GAP Name: Florida Panhandle Beach Vegetation
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland, Wetland

Diagnostic Classifiers: Coast, Beach (Substrate), Graminoid, East Gulf Coastal Plain

Non-Diagnostic Classifiers:

Concept Summary: The panhandle beach system ranges from northwestern Florida (Ochlockonee River) to southeastern Mississippi. It includes the outermost zone of coastal vegetation extending seaward from foredunes. Within the northern Gulf of Mexico, the natural boundaries of this system are fairly distinct; the western boundary is mineralogical and the eastern is defined by a region of sunken, flooded coast line where beaches are absent. In addition, these beaches are distinguished by high cover of Uniola paniculata and Schizachyrium maritimum, along with local endemic species of Chrysoma and Paronychia (Barbour et al. 1987)

Map Value: 13   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES411.271
SE-GAP Name: South Florida Shell Hash Beach
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Coast, Beach (Substrate), Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system represents carbonate sand beaches of the Florida Keys and south Florida mangrove islands (after Johnson and Barbour 1990). The vegetation is poorly known but apparently includes at least one endemic species, Chamaesyce garberi. Other diagnostic species may include Piscidia piscipula and Pithecellobium keyensis.

Map Value: 14	*NLCD Code: 31*	*NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES411.272

SE-GAP Name: Southeast Florida Beach

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Coast, Beach (Substrate), Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This beach system is the southernmost of its kind along the mainland coast of North America. Its southerly location distinguishes it from other types along the Atlantic Coast, primarily due to the prevalence of tropical flora it supports. This type is related to Southwest Florida Beach (CES411.276) but is affected directly by much higher wave energy from the Atlantic. This region has some of the highest wave energy along the entire Atlantic Coastal Plain (Tanner 1960).

Map Value: 15	*NLCD Code: 31*	*NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES411.276

SE-GAP Name: Southwest Florida Beach

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Coast, Beach (Substrate)

Non-Diagnostic Classifiers: Graminoid

Concept Summary: This system ranges from Anclote Key southward to Cape Romano (Johnson and Barbour 1990). Within the northern Gulf region these beaches are distinguished by the highest species richness, greatest cover of succulents, and high cover of Iva imbricata and several tropical species (Barbour et al. 1987). Sands are relatively coarse and, unlike other beach systems of the northern Gulf of Mexico, are extremely rich in calcium from an abundance of calcareous shell fragments.

Map Value: 16	*NLCD Code: 31*	*NLCD Class: BARE ROCK/SAND*

SE-GAP Code: SEGAP311

SE-GAP Name: Bare Sand

SE-GAP Description: Unvegetated areas of sands, usually adjacent to development or military installations.

Map Value: 17	*NLCD Code: 31*	*NLCD Class: BARE ROCK/SAND*

SE-GAP Code: SEGAP312

SE-GAP Name: Bare Soil

SE-GAP Description: Unvegetated areas of organic soils, usually adjacent to development.

Map Value: 18	*NLCD Code: 31*	*NLCD Class: BARE ROCK/SAND*

SE-GAP Code: SEGAP313

SE-GAP Name: Quarry/Strip Mine/Gravel Pit

SE-GAP Description: Unvegetated areas of open excavation usually for obtaining mineral ores and/or building materials.

Map Value: 19   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.327
SE-GAP Name: Southern Appalachian Rocky Summit
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This system represents treeless, high-elevation (1200-2030 m) rock outcrops of the southern Appalachian Mountains, primarily in western North Carolina and eastern Tennessee. Outcrops may be vertical to horizontal, rugged or fractured rock outcrops of peaks, ridgetops, upper slopes, and other topographically exposed locations (Schafale and Weakley 1990). These outcrops occur on felsic to mafic rocks and are distinguished from surrounding systems by the prevalence of bare or lichen-encrusted rocks. Vegetation component of this system is generally characterized by a mix of low-growing lifeforms, especially lichens, mosses, and short-statured forbs. Less commonly graminoids and low shrubs are encountered. Species common to all outcrop vegetation types include Carex misera, Saxifraga michauxii, and Vaccinium corymbosum (Wiser and White 1999).

Map Value: 20   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.297
SE-GAP Name: Southern Appalachian Granitic Dome
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This system consists of smooth, curved, exfoliated outcrops of massive granite and related rocks in the Southern Blue Ridge and upper Piedmont. Smooth rock without crevices is the primary factor in the distinctive ecological character of this system. The outcrop surface is largely bare rock but has thin soil mats around the edges and patchily throughout. Mats vary in depth with age and level of development. Resulting vegetation is a complex of small patches of different species and structure on soil mats of different depths, ranging from moss and lichens to herbs to shrubs and trees.

Map Value: 21   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.601

SE-GAP Name: North-Central Appalachian Acidic Cliff and Talus

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate), Talus (Substrate), Temperate, Acidic Soil

Non-Diagnostic Classifiers: Lowland, Side Slope, Very Shallow Soil, Ustic, Landslide

Concept Summary: Sparsely vegetated to partially wooded cliffs and talus slopes in the Central Appalachians occurring on rocks of acidic lithology and lacking any indicators of enriched conditions. This cliff system occurs at low to mid elevations from central New England south to Tennessee. It consists of vertical or near-vertical cliffs and the talus slopes below, formed on hills of granitic, sandstone, or otherwise acidic bedrock. Most of the substrate is dry and exposed, but small (occasionally large) areas of seepage are often present. Vegetation in seepage areas tends to be more well-developed and floristically different from the surrounding dry cliffs. The vegetation is patchy and often sparse, punctuated with patches of small trees that may form woodlands in places. Juniperus virginiana is a characteristic tree species, Toxicodendron radicans a characteristic woody vine, and Polypodium virginianum a characteristic fern.

Map Value: 22   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.603

SE-GAP Name: North-Central Appalachian Circumneutral Cliff and Talus

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate), Talus (Substrate), Temperate, Alkaline Soil

Non-Diagnostic Classifiers: Lowland, Side Slope, Circumneutral Soil, Very Shallow Soil, Ustic, Landslide, Moderate (100-500 yrs) Persistence

Concept Summary: This cliff system occurs at low to mid elevations from central New England south to Virginia. It consists of vertical or near-vertical cliffs and steep talus slopes, where weathering and/or bedrock lithology produce circumneutral to calcareous pH and enriched nutrient availability. Substrates include limestone, dolomite, and other rocks. The vegetation varies from sparse, to patches of small trees, in places forming woodland or even forest vegetation. Fraxinus spp., Tilia americana, and Staphylea trifolia are woody indicators of the enriched setting. The herb layer includes at least some species that are indicators of enriched conditions, e.g., Impatiens pallida, Pellaea atropurpurea, Asplenium platyneuron, or Woodsia obtusa.

Map Value: 24   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.690
SE-GAP Name: Central Interior Calcareous Cliff and Talus
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers:

Non-Diagnostic Classifiers:

Concept Summary: This system is found primarily in non-Appalachian portions of the Central Interior Division. It ranges from the Ouachitas east to the Cumberlands and north into the Western Allegheny Plateau and Lake states. Limestone and dolomite outcrops and talus distinguish this system. Examples range from moist to dry and from sparsely to moderately well-vegetated. Woodland species such as Thuja occidentalis can establish along the ridgetops. Understory species can range from grassland species such as Andropogon gerardii on drier slopes to more mesic species in areas with higher moisture and more soil development. Wind and water erosion along with fire are the primary natural dynamics influencing this system.

Map Value: 25   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.689
SE-GAP Name: Central Interior Acidic Cliff and Talus
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Cliff (Landform), Talus (Landform), Acidic Soil

Concept Summary: This system is found primarily in the Interior Highlands including the Ozark, Ouachita, and Interior Low Plateau ecoregions. Sandstone outcrops and talus ranging from moist to dry typify this system. It is typically sparsely vegetated, however, on moister sites with more soil development several fern species and sedges (Carex spp.) can establish. Wind and water erosion are the major dynamics influencing this system.

Map Value: 26   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.330
SE-GAP Name: Southern Appalachian Montane Cliff
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Moss/Lichen (Non-Vascular), Cliff (Substrate)

Non-Diagnostic Classifiers:

Concept Summary: This system consists of steep to vertical or overhanging rock outcrops of the Southern Blue Ridge and adjacent parts of other ecoregions. They occur on lower slopes, usually in river gorges or bluffs. The sparse vegetation is limited to plants growing on bare rock, small ledges, and crevices. Vegetation is primarily bryophytes, lichens, and herbs, with sparse trees and shrubs rooted in deeper soil pockets and crevices.

Map Value: 28   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.309
SE-GAP Name: Southern Interior Acid Cliff
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate), Acidic Soil

Non-Diagnostic Classifiers:

Concept Summary: This sandstone cliff system is found in the Cumberland Plateau and Mountain regions of the southeastern United States. Examples are extremely steep or vertical rock faces exposed along bluffs often associated with rivers. Aspect is variable, but best developed south and west. Vascular plants, lichens, and nonvascular plants are all infrequent, due to the lack of crevices capable of accumulating soil, the highly acidic nature of the bedrock, and the frequent weathering and erosion of the substrate. These cliffs are also prone to harsh climatic conditions, and frequent disturbances include drought stress and wind and storm damage. As a result, examples are characterized by sparse herbaceous cover vegetation and few, if any, trees, are present. Vegetation consists of scattered individuals of Asplenium montanum, Silene rotundifolia, and other species rooted in crevices and erosion pockets. In some parts of its range, this system is the primary or sole habitat for rare endemic species, such as Minuartia cumberlandensis.

Map Value: 29   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.356

SE-GAP Name: Southern Interior Calcareous Cliff

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate)

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses calcareous cliffs of the southern Ridge and Valley and adjacent areas of the Interior Low Plateau with a few disjunct localities in the Southern Appalachians. This system includes vertical to near vertical rock faces of limestone and dolomite. These cliffs are typically dry, but may contain relatively small embedded seepage patches. Both wet and, more commonly, dry expressions are included. Due to harsh edaphic conditions, including verticality, these cliffs are nearly unvegetated. However, Asplenium ruta-muraria and Pellaea atropurpurea may be characteristic plants. Some cliffs have scattered Thuja occidentalis trees which may be very old (>800 years) and genetically diverse. This system also covers a narrow zone of vegetation, often herbaceous, at the horizontal cliff top where growing conditions are harsh and often glade-like.

Map Value: 30   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.386

SE-GAP Name: Southern Piedmont Cliff

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate)

Non-Diagnostic Classifiers:

Concept Summary: This system consists of steep to vertical or overhanging rock outcrops in the Piedmont, with occasional examples in the Coastal Plain. They occur on lower to mid slopes, usually in river gorges or bluffs. The sparse vegetation is limited to plants growing on bare rock, small ledges, and crevices. Vegetation is primarily bryophytes, lichens, and herbs, with sparse trees and shrubs rooted in deeper soil pockets and crevices.

Map Value: 32	*NLCD Code: 31*	*NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES203.492

SE-GAP Name: East Gulf Coastal Plain Dry Chalk Bluff

SE-GAP Description:
Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate)

Non-Diagnostic Classifiers:

Concept Summary: The system is endemic to the Black Belt region of Alabama and Mississippi. Examples are relatively sheer surfaces of exposed chalk generally devoid of vegetation. In most cases these bluffs extend directly to the edge of rivers of streams.

Map Value: 33	*NLCD Code: 31*	*NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.329

SE-GAP Name: Southern Piedmont Granite Flatrock

SE-GAP Description:
Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This system consists of smooth, exfoliated outcrops of massive granite and related rocks in the eastern and central Piedmont. The rock lies flush with the surrounding land surface or is level to slightly sloping. The vegetation is a complex of small patches of different species and structure on soil mats of different depths, ranging from moss and lichens to herbs to shrubs and trees.

Map Value: 35	*NLCD Code: 32*	*NLCD Class: UNCONSOLIDATED SHORE*

SE-GAP Code: SEGAP321

SE-GAP Name: Unconsolidated Shore (Lake/River/Pond)

SE-GAP Description:
Unconsolidated material such as silt, sand, or gravel that is subject to inundation and redistribution due to the action of water. Characterized by substrates lacking vegetation except for pioneering plants that become established during brief periods when growing conditions are favorable. Erosion and deposition by waves and currents produce a number of landforms representing this class. Specifically, this class refers to areas along shorelines of streams, rivers, ponds or lakes.

Map Value: 36	*NLCD Code: 32*	*NLCD Class: UNCONSOLIDATED SHORE*

SE-GAP Code: SEGAP322

SE-GAP Name: Unconsolidated Shore (Beach/Dune)

SE-GAP Description:
Unconsolidated material such as silt, sand, or gravel that is subject to inundation and redistribution due to the action of water. Characterized by substrates lacking vegetation except for pioneering plants that become established during brief periods when growing conditions are favorable. Erosion and deposition by waves and currents produce a number of landforms representing this class. Specifically, this class refers to areas along the immediate coastline where marine and higher salinity estuarine tidal waters over-wash the substrate.

Map Value: 37	*NLCD Code: 41*	*NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: SEGAP410

SE-GAP Name: Deciduous Plantations

SE-GAP Description: Even-aged, regularly spaced forest stands established by planting and/or seeding in the process of afforestation or reforestation where individual trees are generally > 5 meters in height. Specifically, this class refers to plantations dominated by deciduous species.

Map Value: 38	*NLCD Code: 41*	*NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.359b

SE-GAP Name: Allegheny-Cumberland Dry Oak Forest and Woodland - Hardwood Modifier

SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Acidic Soil, Broad-Leaved Tree

Non-Diagnostic Classifiers: Lowland, Forest and Woodland (Treed)

Concept Summary: This system encompasses dry hardwood forests on acidic substrates in the Allegheny and Cumberland plateaus, and ridges in the Ridge and Valley. This system can also be found as small isolated patches in the Southern Blue Ridge. Its range is more or less consistent with the "Mixed Mesophytic Forest Region" of Braun (1950) and Greller (1988), although it is not a mesic forest type. These forests can be dominated by Quercus alba, Quercus falcata, Quercus prinus, Quercus coccinea, Acer rubrum, Carya glabra, and Carya alba. These occur in a variety of situations, including on nutrient-poor or acidic soils. Sprouts of Castanea dentata can often be found where it was formerly a common tree.

Map Value: 39	*NLCD Code: 41*	*NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.241

SE-GAP Name: Atlantic Coastal Plain Dry and Dry-Mesic Oak Forest

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Long Disturbance Interval, Broad-Leaved Tree

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system encompasses oak-dominated forests of somewhat fire-sheltered dry to dry-mesic sites in the Mid-Atlantic and South Atlantic Coastal Plain. Sites where this system occurs are somewhat protected from most natural fires by a combination of steep topography and by limited flammability of the vegetation. If fires were more frequent, the vegetation would likely be replaced by more tolerant southern pines especially Pinus palustris.

Map Value: 40   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.242
SE-GAP Name: Atlantic Coastal Plain Mesic Hardwood and Mixed Forest
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Long Disturbance Interval

Non-Diagnostic Classifiers:

Concept Summary: This upland system ranges from southern New Jersey south to southern Georgia in a variety of moist but non-wetland sites that are naturally sheltered from frequent fire. Such sites include bluffs along streams and rivers in dissected terrain, and local topographic high areas within bottomland terraces or nonriverine wet flats. Soils textures are variable in both texture and pH. The vegetation consists of forests dominated by combinations of trees that include a significant component of mesophytic species such as Fagus grandifolia, Magnolia grandiflora, or Acer barbatum. Upland and bottomland oaks at the mid range of moisture tolerance are usually also present, particularly Quercus alba, but sometimes also Quercus falcata, Quercus michauxii, Quercus shumardii, or Quercus nigra. Pinus taeda is sometimes present, but it is unclear if it is a natural component or has entered only as a result of past cutting. Analogous systems on the Gulf Coastal Plain have pine as a natural component, and this may be true for some examples of this system. Understories are usually well-developed. Shrub and herb layers may be sparse or moderately dense. Species richness may be fairly high in basic sites but is fairly low otherwise.

Map Value: 42   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.596
SE-GAP Name: Central and Southern Appalachian Montane Oak Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Forest and Woodland (Treed), Ridge/Summit/Upper Slope, Unglaciated, Broad-Leaved Deciduous Tree, Quercus - Carya

Non-Diagnostic Classifiers: Temperate, Oligotrophic Soil, Acidic Soil, Shallow Soil, Mineral: W/ A Horizon <10 cm, Ustic, Consolidated, W-Landscape/Medium Intensity

Concept Summary: This system is found in the central and southern Appalachian Mountains. These high-elevation deciduous forests occur on exposed sites mostly above 3000 feet. The soils are thin, nutrient-poor, and acidic. The forests are dominated by Quercus spp. (most commonly Quercus rubra and Quercus alba), with the individuals often stunted or wind-flagged. Castanea dentata sprouts are also common, but the importance of chestnut in these forests has been dramatically altered by chestnut blight. Ilex montana and Rhododendron prinophyllum are characteristic shrubs.

Map Value: 43   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.029
SE-GAP Name: Central and Southern Appalachian Northern Hardwood Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Broad-Leaved Tree

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system consists of hardwood forests of the higher elevation zones of the Southern Appalachians, generally above 4500 feet. Included are classic northern hardwood forests as well as high-elevation oak forests. Thus, examples may be dominated by Quercus rubra or various combinations of mesophytic hardwoods. High-elevation climate is the most important ecological factor. Included in this system are limited areas locally known as "beech gaps" and "boulderfields.

Map Value: 44   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.506b
SE-GAP Name: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest - Hardwood Modifier
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval

Non-Diagnostic Classifiers:

Variation: Hardwood - Disturbed areas where hardwoods including oaks, sweetgum, tulip poplar, and red maples occupy the site.

Other Variation(s): Mixed, Pine.

Concept Summary: This forested system of the East Gulf Coastal Plain occurs most extensively on generally rolling uplands north of the range of Pinus palustris. It was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude (the approximate local northern limit of the historic range of Pinus palustris), and about 35 degrees N latitude (the approximate limit where relatively extensive examples of Pinus echinata are replaced by predominantly hardwood-dominated systems. Stands occur on generally well-drained sandy or clayey soils and are dry to dry-mesic in moisture; both xeric and mesic areas are excluded. Pinus echinata is the dominant pine species of the generalized "dry and dry-mesic oak-pine" forest type in the Gulf Coastal Plain (White and Lloyd 1998) and is the most characteristic floristic component of this system. The actual amount of Pinus echinata present varies based on a number of factors, but intact examples of this system often include stands that are dominated by Pinus echinata grading into stands with a mixture of upland hardwoods. Locally, on mid to lower slopes, Pinus taeda may be a component, extending further upslope in the absence of fire. Fire is possibly the most important natural process affecting the floristic composition and vegetation structure of this system, although fire-return intervals are lower than those associated with the East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496). Pinus echinata may have difficulty replacing itself in the absence of fire, particularly on sites other than the driest ones (Eyre 1980). Landers (1989) inferred a fire-return interval of 10 times per century for Pinus echinata. Local topographic conditions affecting natural fire compartment size generally lend themselves to this fire frequency, although some examples may have more frequent fires and some less than this generalized value. Where fire is most frequent the system may develop a relatively pure canopy of Pinus echinata typified by a very open woodland structure with scattered overstory trees and an herbaceous-dominated understory; such examples are rare on the modern landscape. More typical are areas in which Quercus spp., Carya spp., Liquidambar styraciflua, Liriodendron tulipifera, Acer spp., and Nyssa sylvatica have become prominent in the midstory and even overstory and in which herbaceous patches are rare. Although the general distributional boundaries described above, indicate where this system formed an historical landscape matrix, smaller patches of the system may also be present in limited areas both north and south of these boundaries. Although Lawson (1990) maps the native range of shortleaf throughout a relatively large area of western Tennessee, the actual distribution of the species appears to be much more confined and almost absent from the Coastal Plain (Chester 1990); when present, it occurs in only small stands on dry southwestern aspects (C. Nordman pers. comm.).

Map Value: 45   *NLCD Code:41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.502
SE-GAP Name: East Gulf Coastal Plain Limestone Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Circumneutral Soil, Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system represents deciduous forests of the East Gulf Coastal Plain where limestone or other calcareous substrate occurs near enough to the surface to influence vegetation composition. Examples are most common in the Black Belt region of Alabama and Mississippi, but are also present in more isolated patches in other portions of the region, including western Alabama, northern Florida, and western Tennessee. Generally, the vegetation consists of forests and woodlands on well-developed, deep soils. Related vegetation surrounding rock outcrops and calcareous prairies is accommodated under other ecological systems.

Map Value: 46   *NLCD Code:41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.483a
SE-GAP Name: East Gulf Coastal Plain Northern Dry Upland Hardwood Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses oak-dominated forests, often with a pine component present, of somewhat fire-sheltered dry to dry-mesic sites in the East Gulf Coastal Plain. Examples occur on sites intermediate in moisture tendency; excluded are both xeric and mesic sites as indicated by the absence of species indicative of these conditions. Sites where this system occurs are somewhat protected from most natural fires by a combination of steep topography and by limited flammability of the vegetation. If fires were more frequent, the vegetation would likely be replaced by more tolerant southern pines. Pinus taeda is sometimes present, but it is unclear if it is a natural component or has entered only as a result of past cutting.

Map Value: 47   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.481
SE-GAP Name: East Gulf Coastal Plain Northern Loess Bluff Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Loess deposit (undifferentiated), Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system is largely confined to steep bluffs bordering the northern portion of the eastern edge of the Mississippi River Alluvial Plain. The geology is typically mapped as the Jackson Formation. These bluffs extend up to 150 m (500 feet) in elevation and from 30 to 60 m (100-200 feet) above the adjacent plain. They consist of a belt of Pleistocene and Tertiary eolian deposits (Braun 1950) that are often deeply eroded and very steep, with fertile top soil and abundant moisture (Miller and Neiswender 1987). The vegetation is often richer than surrounding non-loessal areas, or those with only thin loess deposits. The forests found on these bluffs are intermediate in soil moisture for the region, and may best be thought of as mesic. The vegetation may be sometimes referred to as western mesophytic forest, and may share some superficial similarities with cove forests of the Interior Highlands. In many cases, these bluffs provide habitat for plant species that are rare or absent from other parts of the Coastal Plain. Braun (1950) noted that the composition of forest changes from north to south along the bluffs; more southerly examples are represented by the East Gulf Coastal Plain Southern Loess Bluff Forest (CES203.556), and these would contain Magnolia grandiflora as an important component. As currently defined this system ranges from about 32 degrees N latitude (where the Big Black River cuts through the bluffs), and occurs only in the westernmost portions of the Upper East Gulf Coastal Plain, including northern and central Mississippi, western Tennessee, and western Kentucky.

Map Value: 48   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.482a
SE-GAP Name: East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland - Hardwood Modifier
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Loess deposit (undifferentiated), Broad-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Hardwood - The native expression of this system dominated by oaks (white, Southern red, post, blackjack), some pines (shortleaf, loblolly) may be present.

Other Variation(s): Juniper.

Concept Summary: This is the former matrix hardwood system of the most northern portions of the Upper East Gulf Coastal Plain of western Tennessee, western Kentucky, southern Illinois, and northern Mississippi. Extensive forests once covered this broad area of generally flat to rolling uplands. Most have been cleared for agriculture due to the rich, productive soils derived from relatively thick loess deposits. The areal extent of this forested system has been so heavily reduced, that the component community types remain undocumented and speculative at best.

Map Value: 49   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.477
SE-GAP Name: East Gulf Coastal Plain Northern Mesic Hardwood Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Slope, Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system includes mesic deciduous hardwood forests of inland portions of the East Gulf Coastal Plain, including Alabama, Mississippi, western Kentucky, and western Tennessee. This system covers parts of the more mesic forests in the Western Mesophytic Forest Region of Braun (1950) referred to as mesophytic mixed hardwoods, as well as mesic forests in the adjacent "Oak-Pine-Hickory" region to the south (Greller 1988). Examples of this system occur on slopes and ravines between dry uplands and stream bottoms. Mesic forests of the loess bluffs are treated in separate ecological systems, being confined to that landform of steep bluffs and ravines on deep loess. The most characteristic feature of the vegetation in some examples may be Fagus grandifolia, but a variety of other hardwood species may also be found in the overstory, and Fagus grandifolia may not always be present. Some stands may be dominated by Fagus grandifolia and Quercus alba, others by Quercus alba or Quercus pagoda with other mesic hardwoods. In addition, Pinus taeda may be common in some examples in the southern portion of the range, depending on previous disturbances. To the south this system is replaced by East Gulf Coastal Plain Southern Mesic Slope Forest (CES203.476), which are within the range of Pinus glabra and Magnolia grandiflora. Most of the vegetation is recovering from one or more forms of severe disturbance (Franklin and Kupfer 2000).

Map Value: 50   *NLCD Code:41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.556
SE-GAP Name: East Gulf Coastal Plain Southern Loess Bluff Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Loess deposit (undifferentiated), Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system is confined to steep loess bluffs ranging from south-central Mississippi to southeastern Louisiana. These bluffs are considerably higher in elevation than the adjacent Mississippi River Alluvial Plain. They consist of a belt of Pleistocene and Tertiary eolian deposits (Braun 1950) that are often deeply eroded and very steep, with fertile top soil and abundant moisture. (The vegetation is often richer than surrounding non-loessal areas, or those with only thin loess deposits. At least in some examples of this system, tree species normally associated with bottomland habitats are found to be abundant or even dominant in non-flooded uplands. However, The forests found on these bluffs are intermediate in soil moisture for the region, and may best be thought of as mesic. In many cases, these bluffs provide habitat "refugia" for plant species that are more common to the north (Delcourt and Delcourt 1975). Braun (1950) noted that the general composition of forests along the bluffs changes from north to south; more northerly examples are represented by East Gulf Coastal Plain Southern Loess Bluff Forest (CES203.556), and these would contain Magnolia grandiflora as an important component. As currently defined this system ranges from about 32 degrees N latitude (where the Big Black River cuts through the bluffs) southward. The closely related East Gulf Coastal Plain Northern Mesic Hardwood Forest (CES203.477) occurs northward of this system.

Map Value: 51   *NLCD Code:41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.476
SE-GAP Name: East Gulf Coastal Plain Southern Mesic Slope Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Slope, Long Disturbance Interval, Broad-Leaved Evergreen Tree

Non-Diagnostic Classifiers:

Concept Summary: This forested system of the East Gulf Coastal Plain occurs on steep slopes, bluffs, or sheltered ravines where fire is naturally rare, generally within the natural range of Pinus glabra (Kossuth and Michael 1990) and Magnolia grandiflora (Outcault 1990). Stands are mesic, and vegetation typically includes species such as Fagus grandifolia, Magnolia grandiflora, Illicium floridanum, and other species rarely encountered outside this system in the region. Examples may also occur on deep loess soils along the western margin of the region. Some component associations are also found in temporarily flooded floodplains adjacent to these slopes, but this is primarily an upland system.

Map Value: 52   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.592a
SE-GAP Name: Northeastern Interior Dry Oak Forest-Hardwood Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Lowland, Forest and Woodland (Treed), Acidic Soil, Quercus - Carya

Non-Diagnostic Classifiers: Side Slope, Toeslope/Valley Bottom, Mineral: W/ A Horizon >10 cm, Loam Soil Texture, Ustic, F-Patch/Medium Intensity, Broad-Leaved Deciduous Tree

Variation: Hardwood - Oak (white, black, Northern red, scarlet) dominated mature stands.

Other Variation(s): Mixed, Virginia/Pitch Pine.

Concept Summary: These oak-dominated forests are one of the matrix forest systems in the northeastern and north-central U.S. Occurring in dry to dry-mesic settings, they grade from closed-canopy forests to patchy-canopy woodlands. They cover large expanses at low to mid elevations, where the topography is flat to gently rolling, occasionally steep. Soils are acidic and relatively infertile, but not strongly xeric. Oak species characteristic of dry-mesic conditions (e.g., Quercus rubra, Quercus alba, Quercus velutina, and Quercus coccinea) and Carya spp. are dominant in mature stands. Castanea dentata was a prominent tree before chestnut blight eradicated it as a canopy constituent. Acer rubrum, Betula lenta, and Betula alleghaniensis may be common associates. Especially on the drier and more acidic sites, heaths, including Kalmia latifolia, Gaylussacia baccata, and Vaccinium spp., may be important shrubs or dwarf-shrubs. With a long history of human habitation, many of the forests are early- to mid-successional, where Pinus strobus, Pinus virginiana, or Liriodendron tulipifera may be dominant or codominant. Within these forests, hillslope pockets with impeded drainage may support small isolated wetlands, including non-forested seeps or forested wetlands with Acer rubrum, Quercus bicolor, or Nyssa sylvatica characteristic.

SE-GAP Code: CES202.898
SE-GAP Name: Southern Interior Low Plateau Dry-Mesic Oak Forest
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system occurs in the southeastern Interior Highlands of the Interior Low Plateau region along gentle to steep slopes of various aspects. The floristic expression varies considerably with aspect and soil type. Included here are a variety of associations ranging from sub-mesic to drier ones. The sub-mesic to dry-mesic expressions tend to be found on mid-slopes with northerly to easterly aspects. The drier ones on southerly to westerly aspects, and on broad ridges. Parent material can range from calcareous to acidic with very shallow, well- to excessively well-drained soils in the drier expressions and moderately well-drained in the sub-mesic to dry-mesic ones. The canopy closure of this system ranges from closed to somewhat open in the drier examples. Historically, these examples may have been more open under conditions of more frequent fire.

A variety of Quercus species dominate this system, with Carya species also prominent. In the drier examples, Quercus prinus is typical over most of the range, reflecting relations with other Appalachian systems to the east. In addition, Quercus stellata, Quercus marilandica, and Quercus coccinea will also share dominance or be prominent in many of the drier examples. Quercus shumardii may appear in drier examples with high base status. Quercus alba may also be present but not typically dominant. In the sub-mesic to dry-mesic examples, Quercus alba will typically exhibit dominance, possibly with Quercus rubra or Quercus falcata. The understories are typically shrub- and small tree-dominated, with the typical species varying with aspect, soil, and moisture relations. Some typical species include Cornus florida, Cercis canadensis, Oxydendrum arboreum, Vaccinium pallidum, Vaccinium stamineum, Vaccinium arboreum, other highbush Vaccinium species, Kalmia latifolia, Viburnum acerifolium, Styrax americanus, and others. Some more open and drier stands may exhibit an understory of grassland species such as Schizachyrium scoparium, Danthonia spicata, and others. Forbs of the Fabaceae (e.g., Desmodium) and Asteraceae (e.g., Helianthus) will be prominent in many examples.

Map Value: 54   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.887
SE-GAP Name: South-Central Interior Mesophytic Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Side Slope, Unglaciated, Eutrophic Soil, Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: These high-diversity deciduous forests occur on deep and enriched soils, usually in somewhat protected landscape positions such as coves or lower slopes. This system is located entirely south of the glacial boundary. Dominant species include Acer saccharum, Fagus grandifolia, Liriodendron tulipifera, Tilia americana, Quercus rubra, Magnolia acuminata, and Juglans nigra. Trees may grow very large in undisturbed areas. The herb layer is very rich, often with abundant spring ephemerals.

Map Value: 55   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.373
SE-GAP Name: Southern and Central Appalachian Cove Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system consists of mesophytic hardwood forests of sheltered topographic positions in the Southern Blue Ridge and Central Appalachians. Examples are generally found on concave slopes that promote moist conditions. The system includes a mosaic of acid and "rich" coves that may be distinguished by individual plant communities based on perceived differences in soil fertility and species richness (rich examples have higher diversity and density in the herbaceous layer). Both acid and rich coves may occur in the same "cove," with the acid coves potentially creeping out of the draw up to at least midslope on well-protected north-facing slopes. Characteristic species in the canopy include Aesculus flava, Acer saccharum, Fraxinus americana, Tilia americana, Liriodendron tulipifera, Halesia tetraptera, Tsuga canadensis, Fagus grandifolia, and Magnolia fraseri.

Map Value: 56   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.886
SE-GAP Name: Southern and Central Appalachian Oak Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Ridge/Summit/Upper Slope, Unglaciated, Broad-Leaved Deciduous Tree, Quercus - Carya

Non-Diagnostic Classifiers:

Concept Summary: This system consists of dry-mesic to dry oak forests occurring on open and exposed topography at lower to mid elevations in the Southern Blue Ridge, Southern Ridge and Valley, and Central Appalachians ecoregions. Vegetation consists of forests dominated most typically by Quercus prinus, Quercus alba, Quercus rubra, and Quercus coccinea, with varying amounts of Carya spp., Acer rubrum, and other species. This system concept also includes many successional communities that have been impacted by logging or agriculture such as types dominated by Liriodendron tulipifera, Pinus spp., and Robinia pseudoacacia.

Map Value: 57   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.560
SE-GAP Name: Southern Coastal Plain Dry Upland Hardwood Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses oak-dominated forests, often with a pine component present, of somewhat fire-sheltered dry to dry-mesic sites in the East Gulf Coastal Plain. Examples occur on sites intermediate in moisture tendency; excluded are both xeric and mesic sites as indicated by the absence of species indicative of these conditions. Sites where this system occurs are somewhat protected from most natural fires by a combination of steep topography and by limited flammability of the vegetation. If fires were more frequent, the vegetation would likely be replaced by more tolerant southern pines. Pinus taeda is sometimes present, but it is unclear if it is a natural component or has entered only as a result of past cutting.

Map Value: 60   *NLCD Code:41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.457b
SE-GAP Name: Southern Ridge and Valley Dry Calcareous Forest - Hardwood Modifier
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Circumneutral Soil, Broad-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system includes dry to dry-mesic calcareous forests of the southern Ridge and Valley region of Alabama and Georgia. Examples occur on a variety of different landscape positions and occur on generally deeper soils than glade systems of the same regions. This system is distinguished from those further north in the Ridge and Valley because of its extreme southern location in the region, an area which is transitional to the "Oak-Pine-Hickory" region. High-quality and historic examples are typically dominated by combinations of Quercus species and Carya species, sometimes with Pinus species and/or Juniperus virginiana as a significant component in certain landscape positions and with particular successional histories. These forests occur in a variety of habitats and are the matrix vegetation type that covers most of the landscape under natural conditions. Examples can occur on a variety of topographic and landscape positions including ridgetops and upper and mid slopes. Fire frequency and intensity is a factor determining the relative mixture of deciduous hardwood versus evergreen trees in this system. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of the original forests. The range of this system is primarily composed of circumneutral substrates, and this exerts an expected influence on the composition of the vegetation.

SE-GAP Code: CES203.254d
SE-GAP Name: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Offsite Hardwood Modifier
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Offsite Hardwoods - Sites that have been heavily disturbed and dominated by offsite hardwoods (water oak, sweetgum, red maple, tulip poplar).

Other Variation(s): Loblolly, Open Understory, Scrub/Shrub Understory.

Concept Summary: This system occurs in the Fall-Line Sandhills region of from central North Carolina extending into central Georgia. It is the predominant system in its range, covering most of the natural landscape of the region. It occurs on upland sites ranging from gently rolling, broad ridgetops to steeper side slopes, as well as locally in mesic swales and terraces. Most soils are well- to excessively drained. The vegetation is naturally dominated by longleaf pine (Pinus palustris). Most associations have an understory of scrub oaks. The herb layer is generally well-developed and dominated by grasses. Wiregrass (Aristida stricta in the north, Aristida beyrichiana in the south) dominates in most of the range, but other grasses dominate where it is absent. Forbs, including many legumes, are also abundant. Frequent, low-intensity fire is the dominant natural ecological force.

SE-GAP Code: CES203.496d
SE-GAP Name: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Offsite Hardwood Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, East Gulf Coastal Plain

Non-Diagnostic Classifiers:

Variation: Offsite Hardwood - Heavily disturbed sites where successional hardwood species dominate (sweetgum, water oak, willow oak)

Other Variation(s): Loblolly, Open Understory, Scrub/Shrub.

Concept Summary: This system represents longleaf pine forests of rolling, dissected uplands of the East Gulf Coastal Plain. These stands occur inland of the coastal flatlands (sensu Peet and Allard 1993) and potentially occupy a much larger geographic area than this related system, extending landward into the Upper East Gulf Coastal Plain by about 50 miles. The characteristic species is Pinus palustris, although many stands may support only relictual individuals given a long history of exploitation and stand conversion. This system includes stands with a range of soil and moisture conditions. Mesic stands on fine-textured soils are more typical of the system, although limited xeric areas on deep sands are also present. In natural condition, fire is believed to have been frequent enough to limit development of intolerant species of hardwoods and both Pinus taeda and Pinus echinata. Although such species may be present or even common in the most mesic stands, they generally do not share dominance in the overstory unless the system has been fire-suppressed.

Map Value: 63   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.479a
SE-GAP Name: East Gulf Coastal Plain Jackson Plain Dry Flatwoods - Open Understory Modifier
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Pimple mounds, Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Variation: Open Understory - Areas dominated by herbaceous or widely scattered shrubs. Frequent fire or management are usually needed to maintain the open aspect.

Other Variation(s): Scrub/Shrub Understory.

Concept Summary: This system represents predominately dry flatwoods of limited areas of the most inland portions of the East Gulf Coastal Plain in western Kentucky. This broad region is referred to as the Jackson Purchase. These flatwoods have long been recognized as a distinctive subdivision within this region (Davis 1923, Bryant and Martin 1988). They tend to be confined to an area near the eastern flank of the region where loess deposits thin out and gravelly or sandy soils predominate. Examples are typified by ridge-and-swale topography. The ridges are somewhat coarser-textured soils and retain less moisture than do the swales, although both occur in a tight local mosaic. The soils appear to have well-developed subsurface hardpans. The impermeability of these hardpans contributes to shallowly perched water tables during portions of the year when precipitation is greatest and evapotranspiration is lowest (not due to overbank flooding). Thus, soil moisture fluctuates widely throughout the growing season, from saturated to very dry, a condition sometimes referred to as xerohydric (Evans 1991). Fire was an important natural process in this system, and well-burned examples tend to be relatively open-canopied with well-developed herbaceous layers (M. Evans pers. comm.).

Map Value: 64   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES203.497
SE-GAP Name: Atlantic Coastal Plain Xeric River Dune
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers:

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses a range of vegetation present on inland sand dunes of the Coastal Plain of Georgia. These dunes are associated with certain rivers such as the Ohoopee (Wharton 1978) and are apparently eolian in origin formed of riverine alluvial sands. The sandy soils are deep, coarse, and xeric in nature. The vegetation consists of an assemblage of xeric communities that also occur in other xeric habitats in the Coastal Plain. These include Pinus palustris – Quercus laevis communities and a scrub community akin to Inland Florida Scrub. This system is distinguished from more typical xeric sandhills of the Coastal Plain by its occurrence on river dunes. In addition this environment is naturally topographically isolated and consequently has a lower fire-return interval than other upland system of which Pinus palustris is a component.

Map Value: 66   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.339a
SE-GAP Name: Southern Piedmont Dry Oak-(Pine) Forest - Hardwood Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Needle-Leaved Tree, Broad-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Hardwood Dominated - The native expression of this system, stongly dominated by oaks (white, Southern red, Northern red, post, black).

Other Variation(s): Loblolly Pine, Mixed.

Concept Summary: This system encompasses the prevailing upland forests of the southern Piedmont. High-quality and historic examples are typically dominated by combinations of upland oaks, sometimes with pines as a significant component, especially in the southern portions of the region. These forests occur in a variety of habitats and, under natural conditions, were the matrix vegetation type covering most of the landscape. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of original oak-hickory forests.

Map Value: 68   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.342
SE-GAP Name: Southern Piedmont Mesic Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Long Disturbance Interval, Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses mixed deciduous hardwood or occasionally hardwood-pine forests of mesic sites in the Piedmont (TNC Ecoregion 52) of the southeastern United Sates. Most examples occur on lower or north-facing slopes where topography creates mesic moisture conditions. A mix of a small number of mesophytic trees is usually dominant, with Fagus grandifolia most prominent. Both acidic and basic substrates are included in this concept currently, as are heath bluffs, where dense shrub layers of mesophytic ericaceous shrubs may occur beneath an open tree canopy. Fire is naturally infrequent in this system, due to the slopes and moist conditions. If fire does penetrate, it is likely to be low in intensity and may not have significant ecological effects.

Map Value: 69   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.478b
SE-GAP Name: East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland - Woodland Modifier
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Graminoid

Non-Diagnostic Classifiers: Herbaceous

Variant: Woodland systems.

Other Variant(s): Herbaceous.

Concept Summary: This system includes natural grassland vegetation and associated wooded vegetation in a relatively small natural region of Mississippi and Alabama north to a small part of southern Tennessee (Black Belt Subsection 231Ba of Keys et al. 1995; Blackland Prairie Ecoregion 65a of Griffith et al. 2001). It occurs over relatively deep soils (as opposed to "glades and barrens"), with circumneutral surface soil pH. However, like other Mississippi Embayment Prairie systems, this type occurs in a matrix of acid soils, and generally forested vegetation. In most cases individual prairie openings are small and isolated from one another, but were formerly more extensive prior to European settlement forming a mosaic of grassland and woodlands under frequent fire regimes. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, but even old-field vegetation reflects the distinctive composition of the flora and ecological dynamics. The flora has much in common with other prairies of the Mississippi Embayment as well as the classic Midwestern prairies.

Map Value: 70   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.898b
SE-GAP Name: Southern Interior Low Plateau Dry-Mesic Oak Forest - Evergreen Modifier
SE-GAP Description:

Map Value: 71   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: SEGAP420
SE-GAP Name: Evergreen Plantations
SE-GAP Description: Even-aged, regularly spaced forest stands established by planting and/or seeding in the process of afforestation or reforestation where individual trees are generally > 5 meters in height. Specifically, this class refers to plantations dominated by evergreen species.

Map Value: 72   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.261
SE-GAP Name: Atlantic Coastal Plain Central Maritime Forest
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Coast

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses most woody vegetation of barrier islands and similar coastal strands, from Virginia Beach to central South Carolina. It includes forests and shrublands whose structure and composition are influenced by salt spray, extreme disturbance events, and the distinctive climate of the immediate coast.

Map Value: 73   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.302
SE-GAP Name: Atlantic Coastal Plain Northern Maritime Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Coast

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses a range of woody vegetation present on barrier islands and near-coastal strands, from Virginia Beach, the northern range limit of Quercus virginiana, northward to the extent of the Atlantic Coastal Plain. It includes forests and shrublands whose structure and composition are influenced by proximity to marine environments, including both upland and wetlands. Vegetation includes narrow bands of forests with often stunted trees with contorted branches and wilted leaves and dense vine layers (Edinger et al. 2002). A range of trees may be present depending upon actual location and degree of protection from most extreme maritime influences.

Map Value: 74   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.537
SE-GAP Name: Atlantic Coastal Plain Southern Maritime Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Coastal plain

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses a range of woody vegetation present on stabilized upland dunes of barrier islands and near-coastal strands, from central South Carolina southward to approximately Volusia County, Florida. It includes vegetation whose structure and composition are influenced by salt spray, extreme disturbance events, and the distinctive climate of the immediate coast. Examples are known from the barrier islands of Georgia and Florida, such as Big Talbot Island, Florida, and probably Sapelo Island, Georgia. Vegetation may include different woodland communities often dominated by southern pine species. Pinus palustris, Pinus serotina, and Pinus elliottii var. elliottii are all important in documented examples. These examples tend to have densely shrubby subcanopies and understories with species such as Quercus virginiana, Quercus geminata, Quercus hemisphaerica, Quercus chapmanii, Quercus myrtifolia, and Magnolia grandiflora. Unlike maritime vegetation to the north, this system may be more heavily influenced by natural fire regimes that may help to explain the predominance of the fire-tolerant pine species. It has been postulated that the natural fire frequency is from 20-30 years.

Map Value: 75   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.028
SE-GAP Name: Central and Southern Appalachian Spruce-Fir Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Forest and Woodland (Treed), Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system consists of forests in the highest elevation zone of the Southern Blue Ridge, generally dominated by Picea rubens or Abies fraseri. Examples occur above 5500 feet, up to the highest peaks. Elevation and orographic effects make the climate cool and wet, with heavy moisture input from fog as well as high rainfall. Strong winds, extreme cold, rime ice, and other extreme weather are periodically important.

Map Value: 76   *NLCD Code:42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.284a

SE-GAP Name: Florida Longleaf Pine Sandhill - Open Understory Modifier

SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Xeric, Very Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Open Understory - Open woodlands with herbaceous or widely dispersed shrubs, generally maintained by fire or other management.

Other Variation(s): Scrub/Shrub Understory.

Concept Summary: This system represents Pinus palustris stands or "islands" on excessively well-drained, sandy soils of central Florida. In comparison with other Pinus palustris-dominated system types of the southeastern United States, this type is unique in being found within a matrix of sand pine scrub vegetation. It occurs in approximately 9 isolated patches ranging in size from 60-4000 hectares, found primarily on the Ocala National Forest. Examples also occur on the southern end of the Lake Wales Ridge. Fire is absolutely essential to maintain this system, without which it may be almost completely replaced by scrub vegetation.

Map Value: 77   *NLCD Code:42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.284b

SE-GAP Name: Florida Longleaf Pine Sandhill - Scrub/Shrub Understory Modifier

SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Xeric, Very Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Scrub/Shrub Understory - Dense shrubs dominate the understory often as the result of fire surpression.

Other Variation(s): Open Understory.

Concept Summary: This system represents Pinus palustris stands or "islands" on excessively well-drained, sandy soils of central Florida. In comparison with other Pinus palustris-dominated system types of the southeastern United States, this type is unique in being found within a matrix of sand pine scrub vegetation. It occurs in approximately 9 isolated patches ranging in size from 60-4000 hectares, found primarily on the Ocala National Forest. Examples also occur on the southern end of the Lake Wales Ridge. Fire is absolutely essential to maintain this system, without which it may be almost completely replaced by scrub vegetation.

Map Value: 79   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.503

SE-GAP Name: East Gulf Coastal Plain Maritime Forest

SE-GAP Description:

> Spatial Scale & Pattern: Large Patch
>
> Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland
>
> Diagnostic Classifiers: Forest and Woodland (Treed), Coast, East Gulf Coastal Plain
>
> Non-Diagnostic Classifiers:
>
> Concept Summary: This system encompasses a mosaic of woody vegetation present on barrier islands and near-coastal strands along the northern Gulf of Mexico, from the Florida panhandle to southern Mississippi. Examples may include forests and/or shrublands that are found in somewhat more protected environments than East Gulf Coastal Plain Dune and Coastal Grassland (CES203.500). Such areas include relatively stabilized coastal dunes, sometimes with a substantial shell component. Vegetation structure and composition are influenced by salt spray, extreme disturbance events, and the distinctive climate of the immediate coast. The most heavily salt-influenced examples may appear pruned or sculpted.

Map Value: 80   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.482b

SE-GAP Name: East Gulf Coastal Plain Northern Loess Plain Oak-Hickory Upland - Juniper Modifier

SE-GAP Description:

> Spatial Scale & Pattern: Matrix
>
> Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland
>
> Diagnostic Classifiers: Forest and Woodland (Treed), Loess deposit (undifferentiated), Broad-Leaved Tree
>
> Non-Diagnostic Classifiers:
>
> Variation: Juniper - Successional sites with juniper or pines (loblolly, shortleaf) strongly dominating.
>
> Other Variation(s): Hardwood.
>
> Concept Summary: This is the former matrix hardwood system of the most northern portions of the Upper East Gulf Coastal Plain of western Tennessee, western Kentucky, southern Illinois, and northern Mississippi. Extensive forests once covered this broad area of generally flat to rolling uplands. Most have been cleared for agriculture due to the rich, productive soils derived from relatively thick loess deposits. The areal extent of this forested system has been so heavily reduced, that the component community types remain undocumented and speculative at best.

Map Value: 82   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.592b
SE-GAP Name: Northeastern Interior Dry Oak Forest - Virginia/Pitch Pine Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Lowland, Forest and Woodland (Treed), Acidic Soil, Quercus - Carya

Non-Diagnostic Classifiers: Side Slope, Toeslope/Valley Bottom, Mineral: W/ A Horizon >10 cm, Loam Soil Texture, Ustic, F-Patch/Medium Intensity, Broad-Leaved Deciduous Tree

Variation: Virginia/Pitch Pine - Areas strongly dominated by Virginia, white, or pitch pine due to disturbance.

Other Variation(s): Mixed, Hardwood.

Concept Summary: These oak-dominated forests are one of the matrix forest systems in the northeastern and north-central U.S. Occurring in dry to dry-mesic settings, they grade from closed-canopy forests to patchy-canopy woodlands. They cover large expanses at low to mid elevations, where the topography is flat to gently rolling, occasionally steep. Soils are acidic and relatively infertile, but not strongly xeric. Oak species characteristic of dry-mesic conditions (e.g., Quercus rubra, Quercus alba, Quercus velutina, and Quercus coccinea) and Carya spp. are dominant in mature stands. Castanea dentata was a prominent tree before chestnut blight eradicated it as a canopy constituent. Acer rubrum, Betula lenta, and Betula alleghaniensis may be common associates. Especially on the drier and more acidic sites, heaths, including Kalmia latifolia, Gaylussacia baccata, and Vaccinium spp., may be important shrubs or dwarf-shrubs. With a long history of human habitation, many of the forests are early- to mid-successional, where Pinus strobus, Pinus virginiana, or Liriodendron tulipifera may be dominant or codominant. Within these forests, hillslope pockets with impeded drainage may support small isolated wetlands, including non-forested seeps or forested wetlands with Acer rubrum, Quercus bicolor, or Nyssa sylvatica characteristic.

Map Value: 83   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES411.287
SE-GAP Name: South Florida Hardwood Hammock
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Alkaline Soil, Broad-Leaved Evergreen Tree

Non-Diagnostic Classifiers:

Concept Summary: This system, as currently defined, occurs only in extreme southern Florida. It consists of upland hardwood forest on elevated ridges of limestone in three discrete major regions; the Keys, southeastern Big Cypress, and the Miami Rock Ridge. Tropical hardwood species are diagnostic of the system, although few are common or dominant in all regions where these hammocks occur (Snyder et al. 1990). Among the species likely to be encountered throughout are Bursera simaruba, Coccoloba diversifolia, and Eugenia axillaris. The northward ranges of these species are limited by the incidence of frosts (Drew and Schomer 1984). Quercus laurifolia is one of the few temperate species which attains prominence in this system. These forests tend to have a dense canopy, that produces deeper shade, less evaporation, and lower air temperature than surrounding vegetation. This microclimate, in combination with high water tables, tends to keep humidity levels high and the community quite mesic (FNAI 1990). A number of orchid and bromeliad species thrive in such conditions. Unlike most coastal plain systems, fire is a major threat to South Florida Hardwood Hammock (CES411.287). For this reason, many examples occur alongside natural firebreaks, such as the leeward side of exposed limestone (Robertson 1955), moats created by limestone solution (Duever et al. 1986), and elevated outcrops above marshes, scrub cypress, or sometimes mangrove swamps (Snyder et al. 1990).

Map Value: 84   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES411.369
SE-GAP Name: Southeast Florida Coastal Strand and Maritime Hammock
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed)

Non-Diagnostic Classifiers:

Concept Summary: This ecological system occurs as a narrow band of hardwood forest and shrublands along the Atlantic coast of southeastern Florida (approximately Volusia County southward). It is found on stabilized, old, coastal dunes, often with substantial shell components. The vegetation is characterized by hardwood species with tropical affinities. As such, the northern extent of this type is limited by periodic freezes and cold tolerance of tropical constituent species, such as Guapira discolor and Exothea paniculata (Johnson and Muller 1993a). This system is closely related to both inland tropical hammocks and southwest Florida maritime hammocks, and may share some species overlap with each.

Map Value: 85   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.332
SE-GAP Name: Southern Appalachian Low Mountain Pine Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Acidic Soil, Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system consists of shortleaf pine- and Virginia pine-dominated forests in the Southern Appalachians, and adjacent areas of the Cumberland Plateau and possibly Interior Low Plateau of Kentucky. Examples can occur on a variety of topographic and landscape positions including ridgetops, upper and mid slopes, as well as lower elevations in the Southern Appalachians such as mountain valleys. Examples occur on a variety of acidic bedrock types. Frequent, low-intensity fires coupled with severe fires (Harrod and White 1999) may have been the sole factor determining the occurrence of this system rather than hardwood forests under natural conditions.

Map Value: 86   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.339b
SE-GAP Name: Southern Piedmont Dry Oak-(Pine) Forest - Loblolly Pine Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Needle-Leaved Tree, Broad-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Loblolly - Sites dominated by loblloy pine. Pines can be mature stands on sites heavily impacted over 60 years ago or dense stands regenerating from a more recent disturbance.

Other Variation(s): Hardwood, Mixed.

Concept Summary: This system encompasses the prevailing upland forests of the southern Piedmont. High-quality and historic examples are typically dominated by combinations of upland oaks, sometimes with pines as a significant component, especially in the southern portions of the region. These forests occur in a variety of habitats and, under natural conditions, were the matrix vegetation type covering most of the landscape. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of original oak-hickory forests.

Map Value: 88   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES411.368
SE-GAP Name: Southwest Florida Coastal Strand and Maritime Hammock
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Coast

Non-Diagnostic Classifiers:

Concept Summary: This ecological system occurs as a narrow band of hardwood forest lying just inland of the coastal dune system in southwestern Florida. It is found on stabilized, old, coastal dunes, often with substantial shell components. The vegetation is characterized by hardwood species with tropical affinities. As such, the northern extent of this type is limited by periodic freezes and cold tolerance of tropical constituent species, such as Piscidia piscipula and Eugenia axillaris (Johnson and Muller 1993a). This system is closely related to both inland tropical hammocks and southeast Florida maritime hammocks, and may share some species overlap with each.

Map Value: 90   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.254c
SE-GAP Name: Atlantic Coastal Plain Fall-Line Sandhills Longleaf Pine Woodland - Loblolly Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrixhigh

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Loblolly - These stands are dominated by loblolly or slash pine as a result of past disturbance history.

Other Variation(s): Offsite Hardwood, Open Understory, Scrub/Shrub Understory.

Concept Summary: This system occurs in the Fall-Line Sandhills region of from central North Carolina extending into central Georgia. It is the predominant system in its range, covering most of the natural landscape of the region. It occurs on upland sites ranging from gently rolling, broad ridgetops to steeper side slopes, as well as locally in mesic swales and terraces. Most soils are well- to excessively drained. The vegetation is naturally dominated by longleaf pine (Pinus palustris). Most associations have an understory of scrub oaks. The herb layer is generally well-developed and dominated by grasses. Wiregrass (Aristida stricta in the north, Aristida beyrichiana in the south) dominates in most of the range, but other grasses dominate where it is absent. Forbs, including many legumes, are also abundant. Frequent, low-intensity fire is the dominant natural ecological force.

Map Value: 91   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.254a
SE-GAP Name: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Open Understory Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrixhigh

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Open Understory - Grasses, widely scattered shrubs, or bare sand and soil dominate the understory. The open aspect usually maintained through frequent fire or other management.

Other Variation(s): Loblolly, Offsite Hardwood, Scrub/Shrub Understory.

Concept Summary: This system occurs in the Fall-Line Sandhills region of from central North Carolina extending into central Georgia. It is the predominant system in its range, covering most of the natural landscape of the region. It occurs on upland sites ranging from gently rolling, broad ridgetops to steeper side slopes, as well as locally in mesic swales and terraces. Most soils are well- to excessively drained. The vegetation is naturally dominated by longleaf pine (Pinus palustris). Most associations have an understory of scrub oaks. The herb layer is generally well-developed and dominated by grasses. Wiregrass (Aristida stricta in the north, Aristida beyrichiana in the south) dominates in most of the range, but other grasses dominate where it is absent. Forbs, including many legumes, are also abundant. Frequent, low-intensity fire is the dominant natural ecological force.

Map Value: 91   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.254a
SE-GAP Name: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Open Understory Modifier

Map Value: 92 *NLCD Code: 42* *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.254b

SE-GAP Name: Atlantic Coastal Plain Fall-line Sandhills Longleaf Pine Woodland - Scrub/Shrub Understory

SE-GAP Description: Spatial Scale & Pattern: Matrixhigh

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Scrub/Shrub - Fire supressed sites with a dense understory of scrub oaks or shrubs.

Other Variation(s): Loblolly, Offsite Hardwood, Open Understory.

Concept Summary: This system occurs in the Fall-Line Sandhills region of from central North Carolina extending into central Georgia. It is the predominant system in its range, covering most of the natural landscape of the region. It occurs on upland sites ranging from gently rolling, broad ridgetops to steeper side slopes, as well as locally in mesic swales and terraces. Most soils are well- to excessively drained. The vegetation is naturally dominated by longleaf pine (Pinus palustris). Most associations have an understory of scrub oaks. The herb layer is generally well-developed and dominated by grasses. Wiregrass (Aristida stricta in the north, Aristida beyrichiana in the south) dominates in most of the range, but other grasses dominate where it is absent. Forbs, including many legumes, are also abundant. Frequent, low-intensity fire is the dominant natural ecological force.

Map Value: 93 *NLCD Code: 42* *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.281

SE-GAP Name: Atlantic Coastal Plain Upland Longleaf Pine Woodland

SE-GAP Description: Spatial Scale & Pattern: Matrixmedium

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system of upland Pinus palustris-dominated vegetation ranges from southern Virginia to southern South Carolina where it was once perhaps the most extensive system in the Outer Coastal Plain within its range. Examples and associations share the common feature of upland (non-wetland) moisture regimes and natural exposure to frequent fire. They occur on a variety of well- to excessively drained soils, and on the higher parts of upland-wetland mosaics. The vegetation is naturally dominated by Pinus palustris. Most associations have an understory of scrub oaks. The herb layer is generally well-developed and dominated by grasses. Aristida stricta dominates in most parts of the system, with other grasses dominating north and south of its range. Frequent, low-intensity fire is the dominant natural ecological force.

Map Value: 94   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.496c
SE-GAP Name: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Loblolly Modifier
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, East Gulf Coastal Plain

Non-Diagnostic Classifiers:

Variation: Loblolly - Disturbed sites where loblolly pines have invaded the site, generally higher density canopies than the native longleaf stands.

Other Variation(s): Offsite Hardwood, Open Understory, Scrub/Shrub.

Concept Summary: This system represents longleaf pine forests of rolling, dissected uplands of the East Gulf Coastal Plain. These stands occur inland of the coastal flatlands (sensu Peet and Allard 1993) and potentially occupy a much larger geographic area than this related system, extending landward into the Upper East Gulf Coastal Plain by about 50 miles. The characteristic species is Pinus palustris, although many stands may support only relictual individuals given a long history of exploitation and stand conversion. This system includes stands with a range of soil and moisture conditions. Mesic stands on fine-textured soils are more typical of the system, although limited xeric areas on deep sands are also present. In natural condition, fire is believed to have been frequent enough to limit development of intolerant species of hardwoods and both Pinus taeda and Pinus echinata. Although such species may be present or even common in the most mesic stands, they generally do not share dominance in the overstory unless the system has been fire-suppressed.

Map Value: 94   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.496a
SE-GAP Name: East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Open Understory Modifier
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, East Gulf Coastal Plain

Non-Diagnostic Classifiers:

Variation: Open Undestory - Sites where fire frequency or management maintain the open aspect with herbaceous or widely scattered shrubs in the understory.

Other Variation(s): Loblolly, Offsite Hardwood, Scrub/Shrub.

Concept Summary: This system represents longleaf pine forests of rolling, dissected uplands of the East Gulf Coastal Plain. These stands occur inland of the coastal flatlands (sensu Peet and Allard 1993) and potentially occupy a much larger geographic area than this related system, extending landward into the Upper East Gulf Coastal Plain by about 50 miles. The characteristic species is Pinus palustris, although many stands may support only relictual individuals given a long history of exploitation and stand conversion. This system includes stands with a range of soil and moisture conditions. Mesic stands on fine-textured soils are more typical of the system, although limited xeric areas on deep sands are also present. In natural condition, fire is believed to have been frequent enough to limit development of intolerant species of hardwoods and both Pinus taeda and Pinus echinata. Although such species may be present or even common in the most mesic stands, they generally do not share dominance in the overstory unless the system has been fire-suppressed.

Map Value: 96　　　　*NLCD Code: 42*　　　　*NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code:　　　　CES203.496b

SE-GAP Name:　　　　East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland - Scrub/Shrub Modifier

SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Very Short Disturbance Interval, East Gulf Coastal Plain

Non-Diagnostic Classifiers:

Variation: Scrub/Shrub - Sites with a dense understory of scrub oaks or shrubs, generally fire surpressed.

Other Variation(s): Loblolly, Offsite Hardwood, Open Understory.

Concept Summary: This system represents longleaf pine forests of rolling, dissected uplands of the East Gulf Coastal Plain. These stands occur inland of the coastal flatlands (sensu Peet and Allard 1993) and potentially occupy a much larger geographic area than this related system, extending landward into the Upper East Gulf Coastal Plain by about 50 miles. The characteristic species is Pinus palustris, although many stands may support only relictual individuals given a long history of exploitation and stand conversion. This system includes stands with a range of soil and moisture conditions. Mesic stands on fine-textured soils are more typical of the system, although limited xeric areas on deep sands are also present. In natural condition, fire is believed to have been frequent enough to limit development of intolerant species of hardwoods and both Pinus taeda and Pinus echinata. Although such species may be present or even common in the most mesic stands, they generally do not share dominance in the overstory unless the system has been fire-suppressed.

Map Value: 97　　　　*NLCD Code: 42*　　　　*NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code:　　　　CES411.367

SE-GAP Name:　　　　South Florida Pine Rockland

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Circumneutral Soil, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system includes pinelands of extreme south Florida growing on limestone. The uniqueness of the flora associated with this type has long been recognized, including the number of endemic and West Indian species. It has been estimated that nearly 1/3 of the taxa found in this system are restricted to it, including half of south Florida's endemic plants (Stout and Marion 1993). Unlike pinelands elsewhere in the southeastern coastal plain, Pinus elliottii var. densa is the only native pine species in this system. Understory vegetation consists of many hardwood species, including a number with tropical origins, and the herbaceous flora is species-rich and fire-adapted.

Map Value: 98   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.331
SE-GAP Name: Southern Appalachian Montane Pine Forest and Woodland
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Forest and Woodland (Treed), Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system consists of forests on strongly exposed topography at low to moderate elevations in the Southern Blue Ridge, Ridge and Valley, and adjacent ecoregions. Most examples are dominated by either Pinus rigida or Pinus pungens, and occasionally Tsuga caroliniana. Fire is a very important process in this system (Harrod and White 1999). Pines may be able to maintain dominance due to edaphic conditions such as very shallow soil or extreme exposure in some areas, but most sites appear eventually to succeed to oak dominance in the absence of fire. Fire is also presumably a strong influence on vegetation structure, producing a more open woodland canopy structure and more herbaceous ground cover.

Map Value: 99   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.494
SE-GAP Name: Southern Coastal Plain Oak Dome and Hammock
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Long Disturbance Interval, Broad-Leaved Evergreen Tree

Non-Diagnostic Classifiers:

Concept Summary: This small-patch system occurs in the inland portions of the East Gulf Coastal Plain and Florida peninsula where examples occupy ies shallow depressions in a predominatley longleaf pine dominated landscape. Thick stands of Quercus virginiana and/or Quercus geminata are diagnostic of this system. Although embedded in a matrix of vegetation with extremely frequent fire regimes, this system is subject to only infrequent or rare fire events. Under more frequent fire regimes, these sites would be likely be occupied by longleaf pine. It has been postulated that winter-burning regimes have allowed this type to expand. A range of soil and moisture conditions may be present. More mesic examples have relatively thin soils (to 50 cm) above clay, while xeric examples occupy deep (>130cm) well drained sands. Dominant plant taxa of mesic examples are Quercus virginiana, Quercus nigra, and Quercus hemisphaerica, along with Diospyros virginiana. Campsis radicans and Smilax spp. dominate the sparse groundcover. In xeric examples dominants include Quercus geminata, Pinus palustris, Quercus virginiana, Aristida stricta, and Stylisma humistrata. This systems is low in plant species diversity compared to most other habitats in the region. This upland system is generally embedded in a matrix these areas are subject to infrequent or rare fire.

Map Value: 100   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.319
SE-GAP Name: Southeastern Interior Longleaf Pine Woodland
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses the fire-maintained woodlands and forests of the outer Piedmont (of Georgia and the Carolinas) and the Talladega upland region (quartzite-slate transition) of Alabama, where Pinus palustris is a dominant or codominant canopy species. Examples occur on rolling to somewhat mountainous upland slopes in North Carolina, Georgia, and Alabama. They are believed to naturally be open woodlands with grassy ground cover, but many are now closed forests with dense shrubs or with little ground cover.

Map Value: 101   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.483b
SE-GAP Name: East Gulf Coastal Plain Northern Dry Upland Hardwood Forest - Offsite Pine Modifier
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Variation: Offsite Pine - Areas dominated by pine.

Other Variation(s): Hardwood dominated.

Concept Summary: This system encompasses oak-dominated forests, often with a pine component present, of somewhat fire-sheltered dry to dry-mesic sites in the East Gulf Coastal Plain. Examples occur on sites intermediate in moisture tendency; excluded are both xeric and mesic sites as indicated by the absence of species indicative of these conditions. Sites where this system occurs are somewhat protected from most natural fires by a combination of steep topography and by limited flammability of the vegetation. If fires were more frequent, the vegetation would likely be replaced by more tolerant southern pines. Pinus taeda is sometimes present, but it is unclear if it is a natural component or has entered only as a result of past cutting.

Map Value: 102   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.359a
SE-GAP Name: Allegheny-Cumberland Dry Oak Forest and Woodland - Pine Modifier
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Acidic Soil, Broad-Leaved Tree

Non-Diagnostic Classifiers: Lowland, Forest and Woodland (Treed)

Concept Summary: This system encompasses dry hardwood forests on acidic substrates in the Allegheny and Cumberland plateaus, and ridges in the Ridge and Valley. This system can also be found as small isolated patches in the Southern Blue Ridge. Its range is more or less consistent with the "Mixed Mesophytic Forest Region" of Braun (1950) and Greller (1988), although it is not a mesic forest type. These forests can be dominated by Quercus alba, Quercus falcata, Quercus prinus, Quercus coccinea, Acer rubrum, Carya glabra, and Carya alba. These occur in a variety of situations, including on nutrient-poor or acidic soils. Sprouts of Castanea dentata can often be found where it was formerly a common tree.

Map Value: 103   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.457a
SE-GAP Name: Southern Ridge and Valley Dry Calcareous Forest - Pine Modifier
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Circumneutral Soil, Broad-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system includes dry to dry-mesic calcareous forests of the southern Ridge and Valley region of Alabama and Georgia. Examples occur on a variety of different landscape positions and occur on generally deeper soils than glade systems of the same regions. This system is distinguished from those further north in the Ridge and Valley because of its extreme southern location in the region, an area which is transitional to the "Oak-Pine-Hickory" region. High-quality and historic examples are typically dominated by combinations of Quercus species and Carya species, sometimes with Pinus species and/or Juniperus virginiana as a significant component in certain landscape positions and with particular successional histories. These forests occur in a variety of habitats and are the matrix vegetation type that covers most of the landscape under natural conditions. Examples can occur on a variety of topographic and landscape positions including ridgetops and upper and mid slopes. Fire frequency and intensity is a factor determining the relative mixture of deciduous hardwood versus evergreen trees in this system. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of the original forests. The range of this system is primarily composed of circumneutral substrates, and this exerts an expected influence on the composition of the vegetation.

Map Value: 104   *NLCD Code:43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.593
SE-GAP Name: Appalachian Hemlock-Hardwood Forest
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Mesotrophic Soil, Needle-Leaved Tree, Broad-Leaved Deciduous Tree, Pinus spp. - Tsuga canadensis

Non-Diagnostic Classifiers: Lowland, Forest and Woodland (Treed), Side Slope, Toeslope/Valley Bottom, Temperate, Acidic Soil, Shallow Soil, Deep Soil,

Mineral: W/ A Horizon >10 cm, Ustic, Long Disturbance Interval, Moderate (100-500 yrs) Persistence

Concept Summary: This forested system of the northeastern U.S. ranges from central New England west to Lake Erie and south to Virginia, continuing down the Appalachians to Georgia. It is one of the matrix forest types in the northern part of the Central Interior and Appalachian Division, in which Tsuga canadensis (or in some cases Pinus strobus) is mixed with northern hardwoods such as Acer saccharum and Fagus grandifolia, as well as with Quercus spp. (most commonly Quercus rubra), Liriodendron tulipifera, Prunus serotina, and Betula lenta (or other Betula spp.). It is of more limited extent and more ecologically constrained to the south of this area.

Map Value: 105   *NLCD Code:43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.591
SE-GAP Name: Central Appalachian Oak and Pine Forest
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Ridge/Summit/Upper Slope, Acidic Soil, Pinus (strobus, rigida, echinata, virginiana) - Quercus prinus

Non-Diagnostic Classifiers: Lowland, Side Slope, Oligotrophic Soil, Mineral: W/ A Horizon <10 cm, Sand Soil Texture, Loam Soil Texture, Ustic, F-Patch/Medium Intensity, W-Patch/Low Intensity, Needle-Leaved Tree, Broad-Leaved Tree

Concept Summary: These oak-pine forests cover large areas in the low- to mid-elevation central Appalachians and foothills. The topography and landscape position range from rolling hills to steep slopes, with occasional occurrences on more level ancient alluvial fans. The soils are coarse and infertile; they may be deep, on glacial deposits, or shallow, on rocky slopes of acidic rock (shale, sandstone, other acidic igneous or metamorphic rock). The well-drained soils and exposure create dry to dry-mesic conditions. The forest is mostly closed-canopy but can include more open woodlands. It is dominated by a variable mixture of dry-site oak and pine species, including Quercus prinus, Pinus virginiana, and Pinus strobus. The system may include areas of pine forest, and mixed oak-pine forest. Heath shrubs such as Vaccinium pallidum, Gaylussacia baccata, and Kalmia latifolia are common in the understory. Within these forests, hillslope pockets with impeded drainage may support small isolated wetlands with Acer rubrum and Nyssa sylvatica characteristic. Disturbance agents include fire, windthrow, and ice damage.

Map Value: 106   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES203.506a
SE-GAP Name: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest - Mixed Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval

Non-Diagnostic Classifiers:

Variation: Mixed - Sites dominated by both short leaf pine and oaks (Southern red oak, post oak, chestnut oak) co-dominate.

Other Variation(s): Hardwood, Pine.

Concept Summary: This forested system of the East Gulf Coastal Plain occurs most extensively on generally rolling uplands north of the range of Pinus palustris. It was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude (the approximate local northern limit of the historic range of Pinus palustris), and about 35 degrees N latitude (the approximate limit where relatively extensive examples of Pinus echinata are replaced by predominantly hardwood-dominated systems. Stands occur on generally well-drained sandy or clayey soils and are dry to dry-mesic in moisture; both xeric and mesic areas are excluded. Pinus echinata is the dominant pine species of the generalized "dry and dry-mesic oak-pine" forest type in the Gulf Coastal Plain (White and Lloyd 1998) and is the most characteristic floristic component of this system. The actual amount of Pinus echinata present varies based on a number of factors, but intact examples of this system often include stands that are dominated by Pinus echinata grading into stands with a mixture of upland hardwoods. Locally, on mid to lower slopes, Pinus taeda may be a component, extending further upslope in the absence of fire. Fire is possibly the most important natural process affecting the floristic composition and vegetation structure of this system, although fire-return intervals are lower than those associated with the East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496). Pinus echinata may have difficulty replacing itself in the absence of fire, particularly on sites other than the driest ones (Eyre 1980). Landers (1989) inferred a fire-return interval of 10 times per century for Pinus echinata. Local topographic conditions affecting natural fire compartment size generally lend themselves to this fire frequency, although some examples may have more frequent fires and some less than this generalized value. Where fire is most frequent the system may develop a relatively pure canopy of Pinus echinata typified by a very open woodland structure with scattered overstory trees and an herbaceous-dominated understory; such examples are rare on the modern landscape. More typical are areas in which Quercus spp., Carya spp., Liquidambar styraciflua, Liriodendron tulipifera, Acer spp., and Nyssa sylvatica have become prominent in the midstory and even overstory and in which herbaceous patches are rare. Although the general distributional boundaries described above, indicate where this system formed an historical landscape matrix, smaller patches of the system may also be present in limited areas both north and south of these boundaries. Although Lawson (1990) maps the native range of shortleaf throughout a relatively large area of western Tennessee, the actual distribution of the species appears to be much more confined and almost absent from the Coastal Plain (Chester 1990); when present, it occurs in only small stands on dry southwestern aspects (C. Nordman pers. comm.).

Map Value: 107   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.592c
SE-GAP Name: Northeastern Interior Dry Oak Forest - Mixed Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Lowland, Forest and Woodland (Treed), Acidic Soil, Quercus - Carya

Non-Diagnostic Classifiers: Side Slope, Toeslope/Valley Bottom, Mineral: W/ A Horizon >10 cm, Loam Soil Texture, Ustic, F-Patch/Medium Intensity, Broad-Leaved Deciduous Tree

Variation: Mixed - Early to mid-successional examples of the dry oak forest with a co-dominance of pines (white, Virginia). Pines co-dominate with native oaks.

Other Variation(s): Virginia/Pitch Pine, Hardwood.

Concept Summary: These oak-dominated forests are one of the matrix forest systems in the northeastern and north-central U.S. Occurring in dry to dry-mesic settings, they grade from closed-canopy forests to patchy-canopy woodlands. They cover large expanses at low to mid elevations, where the topography is flat to gently rolling, occasionally steep. Soils are acidic and relatively infertile, but not strongly xeric. Oak species characteristic of dry-mesic conditions (e.g., Quercus rubra, Quercus alba, Quercus velutina, and Quercus coccinea) and Carya spp. are dominant in mature stands. Castanea dentata was a prominent tree before chestnut blight eradicated it as a canopy constituent. Acer rubrum, Betula lenta, and Betula alleghaniensis may be common associates. Especially on the drier and more acidic sites, heaths, including Kalmia latifolia, Gaylussacia baccata, and Vaccinium spp., may be important shrubs or dwarf-shrubs. With a long history of human habitation, many of the forests are early- to mid-successional, where Pinus strobus, Pinus virginiana, or Liriodendron tulipifera may be dominant or codominant. Within these forests, hillslope pockets with impeded drainage may support small isolated wetlands, including non-forested seeps or forested wetlands with Acer rubrum, Quercus bicolor, or Nyssa sylvatica characteristic.

Map Value: 108   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.339c
SE-GAP Name: Southern Piedmont Dry Oak-(Pine) Forest - Mixed Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Needle-Leaved Tree, Broad-Leaved Tree

Non-Diagnostic Classifiers:

Variation: Mixed - Pines co-dominate with oaks.

Other Variation(s): Hardwood, Loblolly.

Concept Summary: This system encompasses the prevailing upland forests of the southern Piedmont. High-quality and historic examples are typically dominated by combinations of upland oaks, sometimes with pines as a significant component, especially in the southern portions of the region. These forests occur in a variety of habitats and, under natural conditions, were the matrix vegetation type covering most of the landscape. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of original oak-hickory forests.

Map Value: 109   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.023c
SE-GAP Name: Southern Piedmont Dry Oak-Heath Forest - Mixed Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed)

Non-Diagnostic Classifiers:

Variation: Mixed - Sites co-dominated by pines (Virginia, pitch) and oaks (scarlet, black, chestnut).

Other Variation(s): Hardwood, Viginia/Pitch Pine

Concept Summary: This system occupies dry rolling to somewhat dissected uplands of the Piedmont of Virginia and adjacent Maryland where it forms the vegetational matrix. These uplands are underlain by plutonic, felsic metamorphic and acidic metasedimentary rocks. Natural vegetation is dominated by dry, mixed oak forests with ericaceous understories. The heavily ericaceous-dominated understories (especially Kalmia latifolia and Gaylussacia baccata) help to distinguish this system from Southern Piedmont Dry Oak-(Pine) Forest (CES202.339). Elsewhere in the southern Piedmont these species are largely confined to mountainous regions and monadnocks of the inner Piedmont. In addition, Quercus prinus exhibits the same pattern, and Pinus taeda, a common successional tree in the southern Piedmont, is largely absent. Quercus alba is the most abundant and constant oak found in intact examples of this system along with variable associates of Quercus coccinea, Quercus velutina, and Quercus prinus. Embedded submesic ravines and concave landforms support slightly more diverse forests characterized by mixtures of oaks, several hickories, Cornus florida, and sometimes Liriodendron tulipifera. Increased site disturbance generally leads to secondary forest vegetation with a greater proportion of Pinus virginiana, Pinus echinata, and weedy hardwoods such as Acer rubrum.

Map Value: 113   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.600

SE-GAP Name: Central Appalachian Pine-Oak Rocky Woodland

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Shrubland (Shrub-dominated), Woody-Herbaceous, Ridge/Summit/Upper Slope, Acidic Soil, Pinus (strobus, rigida, echinata, virginiana) - Quercus prinus

Non-Diagnostic Classifiers: Lowland, Temperate, Oligotrophic Soil, Shallow Soil, Ustic, Consolidated, F-Patch/Medium Intensity, Needle-Leaved Tree, Broad-Leaved Deciduous Tree, Moderate (100-500 yrs) Persistence

Concept Summary: This system of the central Appalachians encompasses open or scantily wooded hilltops and outcrops, or rocky slopes, at lower elevations. The substrate rock is granitic or of other acidic lithology. The vegetation is patchy, with woodland as well as open portions. Pinus spp. are diagnostic, and often are mixed with xerophytic Quercus spp. Conditions are dry and nutrient-poor, and many if not most sites have a history of fire.

Map Value: 116   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.337

SE-GAP Name: Cumberland Sandstone Glade and Barrens

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades, Acidic Soil

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses a complex of sparsely vegetated rock outcrops, perennial grasslands, and woodlands on shallow soils on the Cumberland Plateau of Tennessee, Alabama, and Georgia. This or a closely related system may also occur in the Shawnee Hills (Interior Low Plateau) of southern Illinois, Indiana, and Kentucky. Herbaceous plants, including Diamorpha smallii and Minuartia glabra, are typical of the outcrops in Tennessee. In Alabama, Bigelowia nuttallii and Schizachyrium scoparium are important. Pinus virginiana and Acer rubrum are typical of the woodlands surrounding these outcrops on the Cumberland Plateau. In the Shawnee Hills, Quercus marilandica, Quercus stellata, and Juniperus virginiana are the dominant trees. Scattered shrubs, such as Vaccinium arboreum and Chionanthus virginicus, occur on the margins in patches of deeper soil. Fruticose lichens such as Cladonia spp. and Cladina spp. may be prominent in some examples.

Map Value: 117   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.334
SE-GAP Name: Nashville Basin Limestone Glade
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades, Alkaline Soil, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses a range of plant communities associated with thin soils on flat areas of Ordovician limestone in the Inner Nashville Basin of Tennessee (Ecoregion 71i of Griffith et al. 1998, EPA 2001; Subsection 222Ed of Keys et al. 1995). The vegetation of this system includes sparsely vegetated rock outcrops, annual Sporobolus spp.-dominated grasslands, Schizachyrium scoparium-dominated perennial grasslands, seasonally wet herbaceous washes and seeps, shrublands, and Juniperus virginiana woodlands. Echinacea tennesseensis and Astragalus bibullatus are completely endemic to this system. There are numerous other disjunct and near-endemic plants.

Map Value: 118   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.024
SE-GAP Name: Ridge and Valley Calcareous Valley Bottom Glade and Woodland
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This system consists of open glades and surrounding woodlands on shallow, high pH, rich soils of the Ridge and Valley region from Virginia southward. These glades occur in broad valley bottoms or rolling basins where soils are shallow over flat-lying limestone strata. The flat terrain and locally xeric soils may have been especially susceptible to periodic fires that helped maintain the prairie-like openings and savanna-like woodlands. Today, much of the system is currently somewhat more closed and brushy, suggesting fire suppression.

Comments: Other calcareous glade systems of the same region occur on hillslopes. They are subject to different erosional processes, zonal vegetation patterns, and generally different ecological dynamics.

Map Value: 119　　　*NLCD Code: 43*　　　　*NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code:　　　CES202.328
SE-GAP Name:　　　Southern Piedmont Glade and Barrens
SE-GAP Description:　Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This system of the southern Piedmont consists of gently to moderately sloping complexes of mostly shallow soil over bedrock, usually with significant areas of rock outcrop. Bedrock potentially includes a variety of igneous and metamorphic rock types. Examples support open vegetation of patchy, mixed physiognomy with a significant woody component. Shallow soils which impede tree growth, help distinguish this system from forest systems of the Piedmont. This system is structurally intermediate between other rock outcrop systems and forest systems.

Map Value: 123　　　*NLCD Code: 52*　　　　*NLCD Class: SHRUB/SCRUB*

SE-GAP Code:　　　CES202.294a
SE-GAP Name:　　　Southern Appalachian Grass and Shrub Bald - Shrub Modifier
SE-GAP Description:　Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Herbaceous, Graminoid

Non-Diagnostic Classifiers:

Variation: Shrub - Shrub balds dominated by rhodendrons, kalmias, or in wetter areas alders.

Other Variation(s): Herbeceous.

Concept Summary: This system consists of dense herbaceous and shrubland communities in the highest elevation zone of the Southern Appalachians, generally above 5000 feet but occasionally to 4000 feet. Vegetation consists either of dense shrub-dominated areas (heath balds) or dense herbaceous cover dominated by grasses or sedges (grassy balds). The combination of high-elevation, non-wetland sites, and dense herbaceous or shrub vegetation without appreciable rock outcrop conceptually distinguishes this system from all others in the Southern Appalachians. However, the widespread areas of degraded spruce-fir system with grass and shrub cover, and the invasion of grassy balds by trees blur the distinction somewhat.

Map Value: 124   *NLCD Code: 52*   *NLCD Class: SHRUB/SCRUB*

SE-GAP Code: CES203.057
SE-GAP Name: Florida Peninsula Inland Scrub
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Xeric, F-Patch/High Intensity, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system appears in many forms, but generally consists of xeromorphic shrub vegetation (mostly Quercus spp.) with or without an emergent overstory of Pinus clausa. Ground cover is always sparse and bare soil patches are typically evident. It is endemic to a sequence of sand ridges and ancient dune fields which are oriented essentially north-south in the Florida peninsula. This system has has long been noted for its unique and interesting vegetation by authors such as Vignoles (1823), Harper (1914), Mulvania (1931), Kurz (1942), Laessle (1958, 1968). More recent treatments by Myers (1990) and Menges (1999) have provided the most comprehensive summaries of scrub available. According to Harper (1927), "the nearly pure white sand of the ground surface when viewed from a short distance, gives the impression of a thin rift of wind-driven snow. The vegetation is mostly dwarfed, gnarled and crooked, and presents a tangled, scraggly aspect." The appearance, floristics, and boundary of Florida scrub contrasts dramatically with the "high pine" or sandhill vegetation which is often adjacent (Laessle 1968).

Map Value: 125   *NLCD Code: 52*   *NLCD Class: SHRUB/SCRUB*

SE-GAP Code: SEGAP511
SE-GAP Name: Successional Shrub/Scrub (Clear Cut)
SE-GAP Description:

Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in early successional stage or trees stunted from environmental conditions. Specifically, this class refers to recently harvested standing tress in the process of naturally regenerating either before planting for timber stand creation, or development.

Map Value: 126   *NLCD Code: 52*   *NLCD Class: SHRUB/SCRUB*

SE-GAP Code: SEGAP512
SE-GAP Name: Successional Shrub/Scrub (Utility Swath)
SE-GAP Description:

Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in early successional stage or trees stunted from environmental conditions. Specifically, this class refers to corridor easements where vegetation is maintained to permit access to utility (gas, electricity, sewer, etc…) lines and pipes.

Map Value: 127   *NLCD Code: 52*   *NLCD Class: SHRUB/SCRUB*

SE-GAP Code: SEGAP513
SE-GAP Name: Successional Shrub/Scrub (Other)
SE-GAP Description:

Areas dominated by shrubs; less than 5 meters tall with shrub canopy typically greater than 20% of total vegetation. This class includes true shrubs, young trees in early successional stage or trees stunted from environmental conditions. Specifically, this class refers to anthropogenically altered shrub/scrub areas other than utility swaths or clear-cuts.

Map Value: 130   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES202.294b
SE-GAP Name: Southern Appalachian Grass and Shrub Bald - Herbaceous Modifier
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Herbaceous, Graminoid

Non-Diagnostic Classifiers:

Variation: Herbaceous - Grassy balds, may have widely scattered shrubs, but generally herbaceous and usually maintained through fire, grazing, or mowing.

Other Variation(s): Shrub.

Concept Summary: This system consists of dense herbaceous and shrubland communities in the highest elevation zone of the Southern Appalachians, generally above 5000 feet but occasionally to 4000 feet. Vegetation consists either of dense shrub-dominated areas (heath balds) or dense herbaceous cover dominated by grasses or sedges (grassy balds). The combination of high-elevation, non-wetland sites, and dense herbaceous or shrub vegetation without appreciable rock outcrop conceptually distinguishes this system from all others in the Southern Appalachians. However, the widespread areas of degraded spruce-fir system with grass and shrub cover, and the invasion of grassy balds by trees blur the distinction somewhat.

Map Value: 132   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.478a
SE-GAP Name: East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland - Herbaceous Modifier
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Graminoid

Non-Diagnostic Classifiers: Herbaceous

Variant: Herbaceous systems.

Other Variant(s): Woodland.

Concept Summary: This system includes natural grassland vegetation and associated wooded vegetation in a relatively small natural region of Mississippi and Alabama north to a small part of southern Tennessee (Black Belt Subsection 231Ba of Keys et al. 1995; Blackland Prairie Ecoregion 65a of Griffith et al. 2001). It occurs over relatively deep soils (as opposed to "glades and barrens"), with circumneutral surface soil pH. However, like other Mississippi Embayment Prairie systems, this type occurs in a matrix of acid soils, and generally forested vegetation. In most cases individual prairie openings are small and isolated from one another, but were formerly more extensive prior to European settlement forming a mosaic of grassland and woodlands under frequent fire regimes. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, but even old-field vegetation reflects the distinctive composition of the flora and ecological dynamics. The flora has much in common with other prairies of the Mississippi Embayment as well as the classic Midwestern prairies.

Map Value: 134   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.555
SE-GAP Name: East Gulf Coastal Plain Jackson Prairie and Woodland
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Circumneutral Soil, Deep Soil, Clay Soil Texture

Non-Diagnostic Classifiers:

Concept Summary: This Jackson Prairie system includes natural grassland vegetation and associated wooded vegetation in a relatively small natural region of Mississippi, the Jackson Hills Subsection (231Bj) also called the Jackson Prairie Ecoregion 65r. This system occurs on montmorillonitic Vertisols, deep slowly permeable soils formed in residuum weathered from marl of chalk. Examples occur in a larger matrix of primarily acidic soils, and of generally Pinus taeda-dominated forest vegetation. In most cases individual prairie openings are small and isolated from one another, but were formerly more extensive prior to European settlement forming a mosaic of grassland and woodland under frequent fire regimes. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, with concomitant destruction of most prairie remnants. The flora has much in common with other prairies of the Mississippi Embayment as well as the classic Midwestern prairies.

Map Value: 135   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES202.354a
SE-GAP Name: Eastern Highland Rim Prairie and Barrens - Dry Modifier
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Deep Soil, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: As noted by Shanks (1958) and described by DeSelm (1989), these barrens occur, at least in part, on Cretaceous gravels which cap Mississippian limestone strata on hills in the Tennessee counties of Dickson, Hickman, Lewis, and Lawrence (these mapped in Miller et al. 1966). The terrain is flat to gently sloping. Shanks (1958) also specifically refers to barrens on "cherty residuum, elsewhere characterized by Planosols with impeded drainage." Some proposed factors which have functioned to maintain their openness include the droughty, gravelly soils and resulting stresses to vegetation, as well as fire. The same gravels are mapped in the TVA Land Between the Lakes (LBL) and this vegetation could be expected there (if all examples have not succeeded to woody vegetation due to lack of fire).

Map Value: 136   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.380
SE-GAP Name: Florida Dry Prairie
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Short Disturbance Interval, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system, which is endemic to subtropical Florida, is characterized by nearly treeless plains with dense cover of grasses and low shrubs, primarily Serenoa repens. Examples occur on flat, low-lying terrain over moderately to poorly drained soils with sandy surfaces overlying organic hardpans or clayey subsoil (FNAI 1990). This type was historically expansive in several regions of Florida (Harper 1927). Early surveyors noted large expanses of this system on the plains near the Kissimmee River, north from Lake Okeechobee, and in the area west of Lake Okeechobee (Fisheating Creek) (Huffman and Judd 1998). but Tthe original extent has been heavily reduced by clearing for agriculture and conversion for forage production. Intact examples have been further altered by fire suppression which changes the proportion of grasses and shrubs and may further alter species composition. Frequent fires were an important natural process in this system, with an estimated frequency of 1-4 years (FNAI 1990).

Map Value: 141   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.264
SE-GAP Name: Atlantic Coastal Plain Northern Dune and Maritime Grassland
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers: Coast, Beach (Substrate), Graminoid, North Atlantic Coastal Plain

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system consists of herbaceous and shrubland vegetation of barrier islands and other coastal areas, ranging from northern North Carolina northward to southern Maine where extensive sandy coastlines are replaced by rocky coasts. Both upland and non-flooded wetland vegetation are included in this system. Dominant ecological processes are those associated with the maritime environment, including frequent salt spray, saltwater overwash, and sand movement.

Map Value: 142   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.273
SE-GAP Name: Atlantic Coastal Plain Southern Dune and Maritime Grassland
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Coast, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system consists primarily of grasslands of Atlantic Coastal Plain barrier islands and related near-coastal areas from North Carolina southward to northern Florida. Upland plant communities and non-flooded wetlands are included in this system as embedded or "inclusional" shrublands. The environment of this system is highly dynamic. Reworking of sand by storms or by slower eolian processes may completely change the local environment in a short time, and portions of the system may occupy sites fairly early in the process of primary succession. The combined effects of chronic and extreme salt spray and ocean overwash prevent or dramatically inhibit woody plant growth.

Map Value: 143   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.500
SE-GAP Name: East Gulf Coastal Plain Dune and Coastal Grassland
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes vegetation of coastal dunes along the northern Gulf of Mexico including northwestern panhandle of Florida, southern Alabama, and southeastern Mississippi. The vegetation consists largely of herbaceous and embedded shrublands on barrier islands and other near-coastal areas where salt spray, saltwater overwash, and sand movement are important ecological forces. This vegetation differs from that of other regions of the Gulf and this region forms a natural unit with similar climate and substrate (Johnson 1997). There are a number of of diagnostic and endemic plant species which characterize this system, including Ceratiola ericoides, Chrysoma pauciflora, Schizachyrium maritimum, Paronychia erecta, and Helianthemum arenicola (Johnson and Barbour 1990).

Map Value: 144   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.539

SE-GAP Name: Southwest Florida Dune and Coastal Grassland

SE-GAP Description:

Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Coast, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system occurs in the Gulf of Mexico along the southwestern coast of Florida. Components of this system include herbaceous vegetation on dunes and related vegetation just inland of the dunes, often on recently deposited sands. These are generally upland plant communities and less commonly non-flooded dune swale wetlands. Although vegetation is mostly herbaceous, there are typically scattered shrubs of various heights present. Examples of this system occupy one of four distinctive coastal regions in Florida; although a given community component of this system may overlap in species composition with those of other Florida coastal regions, there are important and sometimes considerable differences based on plant species composition, vegetation structure, and physical site characteristics (Johnson and Muller 1993). The dune vegetation, like that of other Florida regions, includes Uniola paniculata, Panicum amarum var. amarulum, and Iva imbricata. Scaveola plumieri, Chamaesyce mesembryanthemifolia, and Coccoloba uvifera help distinguish this system from those to the north. However, while all other dune communities in Florida have frequently occurring distinctive species which help distinguish them, such species are lacking in this system. However, more inland coastal grassland components of this system sometimes include Schizachyrium semiberbe and Bouteloua hirsuta, among other species not found in coastal grasslands elsewhere in Florida (Johnson and Muller 1993).

Map Value: 145   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: SEGAP710

SE-GAP Name: Successional Grassland/Herbaceous

SE-GAP Description:

Areas dominated by herbaceous ground cover following a disturbance event such as clearcutting or catastrophic fire.

Map Value: 146   *NLCD Code: 52*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: SEGAP720

SE-GAP Name: Successional Grassland/Herbaceous (Other)

SE-GAP Description:

Areas dominated by herbaceous ground cover following a disturbance event such as clearcutting or catastrophic fire.

Map Value: 147   *NLCD Code: 52*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: SEGAP730

SE-GAP Name: Successional Grassland/Herbaceous (Utility Swath)

SE-GAP Description:

Areas dominated by herbaceous ground cover within corridor easements where vegetation is maintained to permit access to utility
(gas, electricity, sewer, etc.) lines and pipes.

Map Value: 148	*NLCD Code:81*	*NLCD Class: PASTURE/HAY*

SE-GAP Code: SEGAP810

SE-GAP Name: Pasture/Hay

SE-GAP Description: Areas of grasses, legumes, or grass-legume mixtures planted for livestock grazing or the production of seed or hay crops, typically on a perennial cycle. Pasture/hay vegetation accounts for greater than 20% f the total vegetation.

Map Value: 149	*NLCD Code:82*	*NLCD Class: ROW CROP*

SE-GAP Code: SEGAP820

SE-GAP Name: Row Crop

SE-GAP Description: Areas used for the production of annual crops, such as corn, soybeans, vegetables, tobacco, and cotton, and also perennial woody crops such as orchards and vineyards. Crop vegetation accounts for greater than 20 percent of total vegetation. This class also includes all land being actively tilled.

Map Value: 151	*NLCD Code:91*	*NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.247a

SE-GAP Name: Atlantic Coastal Plain Blackwater Stream Floodplain Forest - Forest Modifier

SE-GAP Description: Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Blackwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Variation: Forest - Canopy forest present.

Other Variation(s): Herbaceous.

Concept Summary: This Atlantic Coastal Plain system, which is apparently most abundant in the Carolinas, occurs in floodplains of small streams that carry little mineral sediment (blackwater streams). These streams have their headwaters in sandy portions of the Coastal Plain. The water is usually strongly stained by tannins but has little suspended clay and is not turbid. Depositional landforms may be absent or present only in limited variety and of small size. Soils are usually strongly acidic. Flooding ranges from semipermanent in the wettest floodplains to intermittent and short in higher gradient streams. Some small blackwater streams have most of their flow from sandhill seepage and have limited fluctuation in water levels. Vegetation consists almost entirely of forests of wetland trees. Wetter examples are strongly dominated by Taxodium distichum and Nyssa biflora. Other examples have mixtures of these species with Quercus spp. and other bottomland hardwoods tolerant of blackwater conditions. Species richness ranges from low to moderate, but is lower than in comparable brownwater systems. Flooding is an important ecological factor in this system and may be the most important factor separating it from adjacent systems. Flooding brings nutrients and excludes non-flood-tolerant species. Unlike river systems, flooding tends to be variable and of shorter duration.

Map Value: 152   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.248
SE-GAP Name: Atlantic Coastal Plain Brownwater Stream Floodplain Forest
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This Atlantic Coastal Plain system ranges from the Inner Coastal Plain of Maryland, to the Outer Coastal Plain of southeastern Virginia to Georgia on floodplains of smaller streams that carry significant mineral sediment (brownwater or redwater streams). These streams have their headwaters in the Piedmont, Blue Ridge, or other interior regions, or in portions of the Coastal Plain where fine-textured sediment predominates. The water generally carries substantial amounts of silt and clay. Depositional landforms, at least a natural levee, are often distinctly present but are fairly small relative to the scale of communities but help create some variation in duration of flooding and nutrient input. Soils are generally fertile and not strongly acidic. Flooding is generally seasonal, but may range to nearly semipermanent. Vegetation consists almost entirely of forests of wetland trees. Wetter examples are strongly dominated by Taxodium distichum and Nyssa spp. Other examples have mixtures of these species with Quercus spp. and other bottomland hardwoods. Except in the very wet examples, understory, shrub, and herb layers are generally well-developed and woody vines are also prominent. Flooding is an important ecological factor in this system and may be the most important factor separating it from adjacent systems. Flooding brings nutrients and excludes non-flood-tolerant species. Unlike river systems, flooding tends to be variable and of shorter duration.

Map Value: 153   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.249
SE-GAP Name: Atlantic Coastal Plain Small Blackwater River Floodplain Forest
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Blackwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system encompasses the floodplains of small to medium blackwater rivers, intermediate between the smaller streams and the largest rivers. Blackwater rivers originate in the sandy areas of the Coastal Plain and have less well-developed depositional alluvial landforms. Soils are sandy or mucky, acidic, and infertile. Vegetation is a mosaic of cypress and gum swamps and bottomland hardwoods of a limited set of oaks and other species. In general vegetation is low in species richness.

Map Value: 154   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.250
SE-GAP Name: Atlantic Coastal Plain Small Brownwater River Floodplain Forest
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system encompasses the floodplains of small to medium brownwater rivers of the Atlantic Coastal Plain which are intermediate between the smaller streams and the largest rivers. Brownwater rivers originate in clayey areas and carry substantial amounts of mineral sediment, creating well-developed deposition alluvial landforms and fertile soils. Vegetation is a mosaic of cypress and gum swamps, oak-dominated bottomland hardwoods, and mixed levee forests, with only local non-forested communities.

Map Value: 155   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.608a
SE-GAP Name: Central Appalachian Floodplain - Forest Modifier
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Toeslope/Valley Bottom, Broad-Leaved Deciduous Tree, Riverine / Alluvial, Intermittent Flooding, Short (<5 yrs) Flooding Interval

Non-Diagnostic Classifiers: Lowland, Temperate, Eutrophic Soil, Deep Soil, Mineral: W/ A Horizon >10 cm, Silt Soil Texture, Udic, Ustic, Unconsolidated, Short Disturbance Interval, Flood Scouring, Moderate (100-500 yrs) Persistence, 1-29-day hydroperiod, 30-180-day hydroperiod

Variation: Forest - Canopy forest present.

Other Variation(s): Herbaceous.

Concept Summary: This system encompasses floodplains from southern New England to Virginia. Mostly forested, these occur on floodplains of medium to large rivers where topography and process have resulted in the development of a relatively flat floodplain with a complex of upland and wetland temperate alluvial vegetation. This complex includes floodplain forests in which Acer saccharinum, Populus deltoides, and Platanus occidentalis are characteristic, as well as herbaceous sloughs and shrub wetlands. Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. Depositional and erosional features may both be present depending on the particular floodplain, although there is a history of deposition in the floodplain formation.

Map Value: 156   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.609a
SE-GAP Name: Central Appalachian Riparian - Forest Modifier
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers: Lowland, Very Short Disturbance Interval, Flood Scouring, Riverine / Alluvial, Intermittent Flooding

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Side Slope, Toeslope/Valley Bottom, Temperate, Mesotrophic Soil, Udic, Ustic, Short (50-100 yrs) Persistence, Short (<5 yrs) Flooding Interval

Variation: Forest - Forest canopy present.

Other Variation(s): Herbaceous.

Concept Summary: This riparian system ranges from southern New England to Virginia. It develops on floodplains and shores along river channels that lack a broad flat floodplain due to steeper sideslopes, higher gradient, or both. Flooding is the major process affecting the vegetation, but compared to flat floodplain areas, the substrate is more rapidly drained, and deposition is less important than erosion. The vegetation is a mosaic of forest, woodlands, shrublands, and herbaceous communities. Common trees include Betula nigra, Platanus occidentalis, and Acer negundo. Panicum virgatum and Andropogon gerardii are typical of open, flood-scoured rivershore prairies, and Carex torta is typical of wetter areas near the channel.

Map Value: 157   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.489a
SE-GAP Name: East Gulf Coastal Plain Large River Floodplain Forest - Forest Modifier
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers:

Variation: Forested - Forest canopy present.

Other Variation(s): Herbaceous.

Concept Summary: This system represents a geographic subset of Kuchler's (1964) Southern Floodplain Forest. Examples may be found along large rivers of the East and Upper East Gulf Coastal Plain, especially the Apalachicola, Alabama, Tombigbee, Pascagoula, and Pearl rivers, all of which ultimately drain into the Gulf of Mexico. Several distinct plant communities can be recognized within this system that may be related to the array of different geomorphologic features present within the floodplain. Some of the major geomorphic features associated with different community types include natural levees, point bars, meander scrolls, oxbows, and sloughs (Sharitz and Mitsch 1993). Vegetation generally includes forests dominated by bottomland hardwood species and other trees tolerant of flooding. However, herbaceous and shrub vegetation may be present in certain areas as well.

Map Value: 158   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.559
SE-GAP Name: East Gulf Coastal Plain Small Stream and River Floodplain Forest
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Riverine / Alluvial [Brownwater], Intermittent Flooding

Non-Diagnostic Classifiers:

Concept Summary: This is a predominately forested system of the East Gulf Coastal Plain associated with small brownwater rivers and creeks. In contrast to East Gulf Coastal Plain Large River Floodplain Forest (CES203.489), it has fewer major geomorphic floodplain features typically associated with large rivers floodplains. Those features that are present tend to be smaller and more closely intermixed with one another, resulting in less obvious vegetational zonation. Bottomland hardwood tree species are typically important and diagnostic, although mesic hardwood species are also present in areas with less inundation, such as upper terraces and possibly second bottoms. As a whole, flooding occurs annually, but the water table usually is well below the soil surface throughout most of the growing season. Areas impacted by beaver impoundments are also included in this system.

Map Value: 159   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.195
SE-GAP Name: Mississippi River Low Floodplain (Bottomland) Forest
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: "Low bottomlands" are usually seasonally flooded in backswamps, with flooding more frequent than every five years, usually more frequently than every two years, generally by still water that may be impounded behind natural levees, and are classed as Low Gradient Riverine Backwater wetlands in hydrogeomorphic classifications. Low bottomlands occur along the Mississippi River and its tributaries in the Mississippi River Alluvial Plain ecoregion. Prolonged flooding dominates this system, and its duration is greater that in the adjacent Mississippi River Riparian Forest. Overcup oak is the characteristic dominant species. Soils are clayey with poor internal drainage.

Map Value: 160   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.490a
SE-GAP Name: Lower Mississippi River Bottomland Depressions - Forest Modifier
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Needle-Leaved Tree, Broad-Leaved Deciduous Tree, Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers:

Variation: Forested - Forest canopy present. Species may include swamp blackgum, bald cypress, and other wetland obligates.

Other Variation(s): Herbaceous.

Concept Summary: This system represents semipermanently flooded to saturated depressional areas of the lower Mississippi River Alluvial Valley.

Map Value: 161   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.705a
SE-GAP Name: South-Central Interior Large Floodplain - Forest Modifier
SE-GAP Description:

Spatial Scale & Pattern: Linearmedium

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Herbaceous, Floodplain

Variation: Forested - Canopy forest present.

Other Variation(s): Herbaceous.

Concept Summary: This floodplain system is found throughout the Interior low Plateau, Cumberlands, Southern Ridge and Valley, Western Allegheny Plateau, and lower elevations of the Southern Blue Ridge. Examples occur along large rivers where topography and alluvial processes have resulted in a well-developed floodplain. A single occurrence may extend from river's edge across the outermost extent of the floodplain or to where it meets a wet meadow or upland system. Many examples of this system will contain well-drained levees, terraces and stabilized bars, and some will include herbaceous sloughs and shrub wetlands resulting, in part, from beaver activity. A variety of soil types may be found within the floodplain from very well-drained sandy substrates to very dense clays. It is this variety of substrates in combination with different flooding regimes that creates the mix of vegetation. Most areas, except for the montane alluvial forests, are inundated at some point each spring; microtopography determines how long the various habitats are inundated. Although vegetation is quite variable in this broadly defined system, examples may include Acer saccharinum, Platanus occidentalis, Liquidambar styraciflua, and Quercus spp. Understory species are mixed, but include shrubs, such as Cephalanthus occidentalis and Arundinaria gigantea ssp. gigantea, and sedges (Carex spp.). This system likely floods at least once annually and can be altered by occasional severe floods. Impoundments and conversion to agriculture can also impact this system.

Map Value: 162   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.706
SE-GAP Name: South-Central Interior Small Stream and Riparian
SE-GAP Description: Spatial Scale & Pattern: Linearmedium

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Stream terrace (undifferentiated)

Concept Summary: This system is found throughout the Interior Low Plateau, Southern Ridge and Valley, Western Allegheny Plateau, and lower elevations of the Southern Blue Ridge. Examples occur along small streams and floodplains with low to moderately high gradients. There may be little to moderate floodplain development. Flooding and scouring both influence this system, and the nature of the landscape prevents the kind of floodplain development found on larger rivers. This system may contain cobble bars with adjacent wooded vegetation and rarely have any marsh development, except through occasional beaver impoundments. The vegetation is a mosaic of forests, woodlands, shrublands, and herbaceous communities. Canopy cover can vary within examples of this system, but typical tree species may include Platanus occidentalis, Acer rubrum var. trilobum, Betula nigra, Liquidambar styraciflua, and Quercus spp. Shrubs and herbaceous layers can vary in richness and cover. Some characteristic shrubs may include Hypericum densiflorum, Salix spp., and Alnus spp. Small seeps dominated by sedges (Carex spp.), ferns (Osmunda spp.), and other herbaceous species can often be found within this system, especially at the headwaters and terraces of streams.

Map Value: 163   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.493
SE-GAP Name: Southern Coastal Plain Blackwater River Floodplain Forest
SE-GAP Description: Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Blackwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system occurs along certain river and stream drainages of the East Gulf Coastal Plain of Florida, Alabama, and Mississippi that are characterized by dark waters high in particulate and dissolved organic materials, and that generally lack floodplain development. In most cases these are streams that have their headwaters in sandy portions of the Outer Coastal Plain. Consequently, they carry little mineral sediment or suspended clay particles and are not turbid except after the heaviest rain events. The water is classically dark in color due to concentrations of tannins, particulates, and other materials derived from drainage through swaps or marshes (FNAI 1990). In comparison with brownwater rivers of the region, this system tends to be much more acidic in nature and generally lacks extensive and continuous floodplain and levees; steep banks alternating with floodplain swamps are more characteristic (FNAI 1990).

Map Value: 164   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.324a
SE-GAP Name: Southern Piedmont Large Floodplain Forest - Forest Modifier
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Variation: Forested - Canopy forest present.

Other Variation(s): Herbaceous.

Concept Summary: This system consists of vegetated communities along Piedmont rivers, south of the James River in Virginia, where flooding and flood-related environmental factors affect vegetational composition and dynamics. Well-developed examples of this system occur in the Triassic basins. The vegetation includes both non-forested bar and scour communities and the more extensive forested floodplain communities. Forests are generally differentiated by depositional landforms such as levees, sloughs, ridges, terraces, and abandoned channel segments. The system is affected by flooding through wetness, scouring, deposition of material, and input of nutrients.

Map Value: 165   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.323
SE-GAP Name: Southern Piedmont Small Floodplain and Riparian Forest
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system consists of vegetated communities along streams and small rivers in the Piedmont of the southeastern United States where flooding and flood-related environmental factors affect vegetational composition and dynamics. The vegetation includes both non-forested bar and scour communities and the more extensive forested floodplain communities. The forests of these smaller floodplains and bottomlands are not differentiated by depositional landforms such as levees, sloughs, ridges, terraces, and abandoned channel segments, because these features are small and flooding regimes are variable. The system is affected by flooding through wetness, scouring, deposition of material, and input of nutrients.

Map Value: 166   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.190

SE-GAP Name: Mississippi River Riparian Forest

SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: : This system is comprised of "riverfront" Associations, generally temporarily (but rarely seasonally) flooded on point bars and natural levees adjacent to the river that formed them, with flooding more frequent than every five years, by flowing water directly from the stream. They occur along the lower Mississippi River and its tributaries in the Mississippi River Alluvial Plain ecoregion. They are classed as Low Gradient Riverine Overbank wetlands in a hydrogeomorphic classification. Flooding is of lower duration than on adjacent backswamps where water is impounded behind riverfront natural levees. Flooding is of longer duration than on adjacent high bottomlands that are typically temporarily flooded. Soils are typically sandier than those of low bottomlands. Giant cane (Arundinaria gigantea) is a common understory in these forests on natural levees and higher point bars, and may become dominant after thinning or removal of overstory. Willow and cottonwood sandbars may have an open-canopy (woodland-type) structure.

Map Value: 167   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.304b

SE-GAP Name: Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Forest - Taxodium/Nyssa Modifier

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Tree, Extensive Wet Flat

Non-Diagnostic Classifiers:

Variation: Taxodium/Nyssa - Deeper water expressions of this system dominated by bald cypress and/or water tupelo and swamp blackgum.

Other Variation(s): Oak.

Concept Summary: This system consists of poorly drained, organic or mineral soil flats of the outer Atlantic Coastal Plain. These areas are saturated by rainfall and seasonal high water table without influence of river or tidal flooding. Fire is generally infrequent, but may be important for some associations. Vegetation consists of hardwood or mixed forests of Taxodium distichum, Nyssa spp., bottomland oaks, or other wetland trees of similar tolerance. The lower strata have affinities with pocosin or baygall systems rather than the river floodplain systems that have affinities with the canopy. The combination of canopy dominants and nonriverine, non-seepage hydrology distinguishes this system from other Coastal Plain systems.

Map Value: 168   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.304a

SE-GAP Name: Atlantic Coastal Plain Nonriverine Swamp and Wet Hardwood Forest - Oak Dominated Modifier

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Tree, Extensive Wet Flat

Non-Diagnostic Classifiers:

Variation: Oak - Shallower water expressions of this system dominated by oaks (laurel, swamp white, swamp chestnut).

Other Variation(s): Taxodium/Nyssa.

Concept Summary: This system consists of poorly drained, organic or mineral soil flats of the outer Atlantic Coastal Plain. These areas are saturated by rainfall and seasonal high water table without influence of river or tidal flooding. Fire is generally infrequent, but may be important for some associations. Vegetation consists of hardwood or mixed forests of Taxodium distichum, Nyssa spp., bottomland oaks, or other wetland trees of similar tolerance. The lower strata have affinities with pocosin or baygall systems rather than the river floodplain systems that have affinities with the canopy. The combination of canopy dominants and nonriverine, non-seepage hydrology distinguishes this system from other Coastal Plain systems.

Map Value: 169   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.384a

SE-GAP Name: Southern Coastal Plain Nonriverine Basin Swamp - Okefenokee Taxodium Modifier

SE-GAP Description:

Map Value: 170   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.384b

SE-GAP Name: Southern Coastal Plain Nonriverine Basin Swamp - Okefenokee Bay/Gum Modifier

SE-GAP Description:

Map Value: 171   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.384c

SE-GAP Name: Southern Coastal Plain Nonriverine Basin Swamp - Okefenokee Pine Modifier

SE-GAP Description:

SE-GAP Code: CES411.366

SE-GAP Name: South Florida Bayhead Swamp

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Evergreen Tree

Concept Summary: This system consists of predominately broad-leaved hardwoods emergent amidst marshes of the south Florida Everglades region. These areas are often called tree islands as they occur on slightly elevated sites above the low-relief marshes and have been considered "perhaps the most striking botanical feature in the Everglades" (Loveless 1959). Individual islands often have a characteristic shape depending upon the size; large islands are often teardrop-shaped, smaller islands are circular (Loveless 1959, Gunderson and Loftus 1993). Patches range in size from ¼ acre to exceeding 300 or more acres. These islands often form an abrupt ecotone with adjacent fire-prone marshes. Fires enter bayhead swamps only under extreme drought conditions and may kill much of the bayhead vegetation and heavily reduce peat accumulation. If left long unburned, bayheads may succeed to hardwood hammocks.

Map Value: 173   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.245a
SE-GAP Name: Atlantic Coastal Plain Clay-Based Carolina Bay Forested Wetland
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Graminoid, Depressional

Non-Diagnostic Classifiers:

Concept Summary: This system consists of wetlands associated with ovoid, shallow depressions with nearly flat bottoms in parts of the Atlantic Coastal Plain. Often called Carolina bays, these areas are most numerous and extensive in South Carolina but are also present in the Inner Coastal Plain of North Carolina. The depressions have mineral soils with clay hardpans that trap and retain water from a combination of rainfall and exposure of a high regional water table. Some examples are essentially permanently flooded, while others support water levels that vary substantially from year to year and over longer climatic cycles. Vegetation includes a series of primarily herbaceous and woodland associations. The wettest sites have open water and floating-leaved aquatic vegetation, or marsh vegetation of tall graminoids. Drier sites often have an open canopy of Taxodium ascendens, with a dense, often fairly species-rich herbaceous layer beneath. A few occurrences are shrubby, but none contain the dense shrub layers of characteristic pocosin species that occur in the bays with organic soils. Vegetational composition often varies substantially from year to year, in response to differences in water levels and drawdown times. Variation in hydroperiod is the most important dynamic, causing rapid major changes in the herbaceous vegetation. Unlike the steeper-sided solution depressions, where many different hydroperiods are present within a short distance and vegetation zones simply shift, the flat-bottomed Carolina bays experience drastic yearly changes in hydroperiod over most of their extent. Fire periodically spreads into the bays from adjacent uplands when conditions are dry, helps prevents invasion by less water-tolerant trees during dry periods, and interacts with flooding to affect vegetational composition. Where fire is removed, Pinus taeda often invades the bays. Fire may also be important in preventing buildup of organic matter on the soil surface.

Map Value: 174   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.520

SE-GAP Name: Atlantic Coastal Plain Northern Basin Swamp and Wet Hardwood Forest

SE-GAP Description:

Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Seepage-Fed Sloping, North Atlantic Coastal Plain

Non-Diagnostic Classifiers:

Concept Summary: This system is comprised of hardwood swamps of seasonally flooded habitats, including relatively shallow groundwater-influenced depressions, stream headwaters and other topographic depressions. It ranges from Long Island, New York, south to Virginia. Although supporting some seepage indicators, they are also affected by overland flow. The substrate is mineral soil overlain by a variable organic but non-peaty layer. Characteristic tree species include Acer rubrum, Liquidambar styraciflua, Nyssa sylvatica, Quercus phellos, and Fraxinus pennsylvanica. Pinus taeda is not uncommon south of Delaware Bay.

Map Value: 175   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.267

SE-GAP Name: Atlantic Coastal Plain Peatland Pocosin

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Extensive Wet Flat

Non-Diagnostic Classifiers:

Concept Summary: This system includes wetlands of organic soils, occurring on broad flats or gentle basins, primarily on the outer terraces of the Atlantic Coastal Plain of the Carolinas and southeastern Virginia. The vegetation is predominantly dense shrubland and very shrubby open woodlands. A characteristic suite of primarily evergreen shrubs, greenbriars, and pond pine (Pinus serotina) dominates. Herbs are scarce and largely limited to small open patches. Soil saturation, sheet flow, and peat depth create a distinct zonation, with the highest stature woody vegetation on the edges and lowest in the center. Catastrophic fires are important in this system, naturally occurring at moderate frequency. Fires generally kill all above-ground vegetation in large patches, creating shifting patches. Vegetation structure and biomass recover rapidly in most of the burned areas, primarily by sprouting.

Map Value: 176   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.252

SE-GAP Name: Atlantic Coastal Plain Streamhead Seepage Swamp, Pocosin, and Baygall

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Seepage-Fed Sloping

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses seepage-fed wetlands in dissected Coastal Plain landscapes, from southeastern Virginia to northeastern Florida. Examples are usually associated with ravines or along headwater streams. Overbank flooding is a negligible influence. Fire may be an important force in some associations and not in others. Vegetation consists of open to closed forest of acid-tolerant wetland hardwoods or pine. Generally there is a dense shrub layer consisting primarily of species shared with Atlantic Coastal Plain Peatland Pocosin (CES203.267).

Map Value: 177   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.384d

SE-GAP Name: Southern Coastal Plain Nonriverine Basin Swamp - Okefenokee Nuphar Modifier

SE-GAP Description:

Map Value: 178   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.384e

SE-GAP Name: Southern Coastal Plain Nonriverine Basin Swamp - Okefenokee Clethra Modifier

SE-GAP Description:

Map Value: 179   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.384

SE-GAP Name: Southern Coastal Plain Nonriverine Basin Swamp

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Depressional

Non-Diagnostic Classifiers:

Concept Summary: This system occupies large, seasonally inundated basins with peaty substrates in the outer portions of the East Gulf Coastal Plain. These areas are nonriverine and do not receive overbank flooding. Examples are generally forested; the vegetation is characterized by Taxodium distichum, Nyssa biflora, evergreen "bay" shrubs and/or mixed hardwoods. Emergent Pinus elliottii may also be present. Some characteristic shrubs include Cliftonia monophylla, Cyrilla racemiflora, Lyonia lucida, and Smilax laurifolia.

Map Value: 180	*NLCD Code:91*	*NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.505

SE-GAP Name: Southern Coastal Plain Seepage Swamp and Baygall

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Broad-Leaved Tree, Seepage-Fed Sloping

Non-Diagnostic Classifiers: Shrubland (Shrub-dominated)

Concept Summary: This West Gulf Coastal Plain ecological system consists of forested wetlands (often densely wooded) in acidic, seepage influenced wetland habitats. These wetlands may occur in poorly developed upland drainages, toe-slopes, and small headwaters stream bottoms. These environments are prone to long duration standing water, and tend to occur on highly acidic, nutrient-poor soils. The vegetation is characterized by Magnolia virginiana, Nyssa sylvatica, Nyssa biflora, and Acer rubrum, although there is some variation according to latitude. Understory vegetation throughout the region consistently supports an abundance of ferns, such as Osmunda cinnamomea, Osmunda regalis var. spectabilis, and Woodwardia areolata. In most cases, these wetlands are embedded in uplands with deep sandy soils. When these communities are associated with streams, they tend to be low gradient, with narrow, often braided channels and diffuse drainage patterns. Due to excessive wetness, these habitats are normally protected from fire except those which occur during extreme droughty periods.

Map Value: 181	*NLCD Code:91*	*NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.604

SE-GAP Name: North-Central Appalachian Acidic Swamp

SE-GAP Description:

Spatial Scale & Pattern: Large patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Woody Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Needle-Leaved Tree, Extensive Wet Flat, 30-180-day hydroperiod

Non-Diagnostic Classifiers: Acidic Water, Broad-Leaved Deciduous Tree, Partially Isolated Wetland, Lowland, Mineral: W/ A-Horizon >10 cm, Moderate (100-500 yrs) Persistence, Organic Peat (>40 cm), Shallow (<15 cm) Water, Temperate

Concept Summary: These swamps are distributed through the Central Appalachians south to Virginia. They are found in basins, or on gently sloping seepage lowlands. The acidic substrate is mineral soil, often with a component of organic muck; if peat is present, it usually forms an organic epipedon over the mineral soil rather than a true peat substrate. Tsuga canadensis is usually present and may be dominant. It is often mixed with deciduous wetland trees such as Acer rubrum or Nyssa sylvatica. Sphagnum is an important component of the bryoid layer. Basin swamps tend to be more nutrient-poor and less species-rich than seepage swamps; in some settings, the two occur adjacent to each other with the basin swamp vegetation surrounded by seepage swamp vegetation on its upland periphery.

Map Value: 182   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.336
SE-GAP Name: Southern Piedmont/Ridge and Valley Upland Depression Swamp
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Depressional

Non-Diagnostic Classifiers: Shrubland (Shrub-dominated)

Concept Summary: This system represents isolated wetlands of the Piedmont in small, shallow basins in upland settings where water pools due to limited soil drainage. Most known examples occur on mafic rocks. The typical hydrology is seasonally flooded. Most examples consist of forests of wetland oaks, but a few are treeless or open-canopied ponds. Vegetation is zoned with an outer ring of trees, a more interior ring of shrubs, herbs and vines, and a central area with or without standing water year round depending on precipitation. A few examples occur in the adjacent Southern Blue Ridge and Ridge and Valley ecoregions. This system also includes the wet hardwood forests ("Iredell Flatwoods" or "Gabbro Glades") which occur on gently sloping terrain or shallowly depressed upland flats over gabbro-derived clays in the Piedmont of Georgia and South Carolina.

Map Value: 183   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.265
SE-GAP Name: Atlantic Coastal Plain Northern Wet Longleaf Pine Savanna and Flatwoods
SE-GAP Description: Spatial Scale & Pattern: Matrixhigh

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system of wet Pinus palustris-dominated savannas and flatwoods ranges from southern Virginia to southern South Carolina. It was once one of the most extensive systems in the coastward part of its range. Examples and associations share the common features of wet, seasonally saturated, mineral soils and exposure to frequent fire. They occur on a wide range of soil textures, which is an important factor in distinguishing different associations. The vegetation is naturally dominated by Pinus palustris or, less frequently, other wetland pines. There is a dense ground cover of herbs and low shrubs; grasses dominate but there is often a large diversity of other herbs. Frequent, low-intensity fire is the dominant natural ecological force.

Map Value: 184   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.536
SE-GAP Name: Atlantic Coastal Plain Southern Wet Pine Savanna and Flatwoods
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Woody-Herbaceous

Concept Summary: This system ranges from southern South Carolina to northeastern Florida where it was the former matrix system, centered in southeastern Georgia, near the coast. This general area has been referred to as the Longleaf Pine Wiregrass Savannas region (Platt 1999) and the Sea Island Flatwood Ecoregion (Griffith et al. 1993). Examples of this system and component community associations share the common features of wet, seasonally saturated, mineral soils and historic exposure to frequent low-intensity fire. They occur on a wide range of soil textures, which is an important factor in distinguishing different associations. The vegetation is naturally dominated by Pinus palustris or, on wetter sites, Pinus elliottii or less commonly Pinus serotina. In natural condition there tends to be a dense ground cover of herbs and low shrubs; grasses can dominate but there is often a large diversity of other herbs and shrubs.

Map Value: 185   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.382
SE-GAP Name: Central Florida Pine Flatwoods
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Woody-Herbaceous, Short Disturbance Interval, Needle-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system is endemic to Florida, ranging in the north from approximately Levy and St. Johns counties southward to approximately Hillsborough and Polk counties. It was once an extensive system within its historic range. As currently conceived, this system includes both "scrubby flatwoods" that occur on well-drained soils and typical flatwoods that occur on more poorly drained soils. The vegetation is naturally dominated by either Pinus palustris or Pinus elliottii var. elliottii, and less frequently includes Pinus serotina. Examples vary in aspect from well-developed understory layers or scrub species to more herbaceous, savanna-like conditions. There is a dense ground cover of low shrubs, grasses, and herbs. Frequent, low-intensity fire is the dominant natural ecological force.

Map Value: 186   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.375c
SE-GAP Name: East Gulf Coastal Plain Near-Coast Pine Flatwoods - Offsite Hardwood Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval, Needle-Leaved Tree, Extensive Wet Flat

Non-Diagnostic Classifiers:

Variation: Offsite Hardwood - Disturbed areas that are dominated successsional hardwoods (sweetgum, water oak, red maple).

Other Variation(s): Open Understory, Scrub/Shrub Understory.

Concept Summary: This system of open forests or woodlands occupies broad, sandy flatlands in a relatively narrow band along the northern Gulf of Mexico coast east of the Mississippi River [see map in Peet and Allard (1993)]. These areas, often called "flatwoods," are subject to high fire-return intervals even though they are subject to seasonally high water tables. Overstory vegetation is characterized by Pinus palustris and to a lesser degree by Pinus elliottii. Understory conditions range from densely shrubby to open and herbaceous-dominated, based largely upon fire history. Although fires are naturally frequent, they presumably occur with somewhat lower frequency than either longleaf-dominated types or treeless savanna

Map Value: 187   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.375a
SE-GAP Name: East Gulf Coastal Plain Near-Coast Pine Flatwoods - Open Understory Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval, Needle-Leaved Tree, Extensive Wet Flat

Non-Diagnostic Classifiers:

Variation: Open Understory - Areas dominated by herbaceous or widely scattered shrubs. Open aspect generally maintained through fire or other management.

Other Variation(s): Scrub/Shrub Understory.

Concept Summary: This system of open forests or woodlands occupies broad, sandy flatlands in a relatively narrow band along the northern Gulf of Mexico coast east of the Mississippi River [see map in Peet and Allard (1993)]. These areas, often called "flatwoods," are subject to high fire-return intervals even though they are subject to seasonally high water tables. Overstory vegetation is characterized by Pinus palustris and to a lesser degree by Pinus elliottii. Understory conditions range from densely shrubby to open and herbaceous-dominated, based largely upon fire history. Although fires are naturally frequent, they presumably occur with somewhat lower frequency than either longleaf-dominated types or treeless savannas.

Map Value: 188   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.375b
SE-GAP Name: East Gulf Coastal Plain Near-Coast Pine Flatwoods - Scrub/Shrub Understory Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval, Needle-Leaved Tree, Extensive Wet Flat

Non-Diagnostic Classifiers:

Variation: Scrub/Shrub Understory - Areas with dense shrubs, often the result of fire surpression.

Other Variation(s): Open Understory.

Concept Summary: This system of open forests or woodlands occupies broad, sandy flatlands in a relatively narrow band along the northern Gulf of Mexico coast east of the Mississippi River [see map in Peet and Allard (1993)]. These areas, often called "flatwoods," are subject to high fire-return intervals even though they are subject to seasonally high water tables. Overstory vegetation is characterized by Pinus palustris and to a lesser degree by Pinus elliottii. Understory conditions range from densely shrubby to open and herbaceous-dominated, based largely upon fire history. Although fires are naturally frequent, they presumably occur with somewhat lower frequency than either longleaf-dominated types or treeless savanna

Map Value: 189   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.557

SE-GAP Name: East Gulf Coastal Plain Southern Loblolly-Hardwood Flatwoods

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Extensive Wet Flat

Non-Diagnostic Classifiers: Pimple mounds, Needle-Leaved Tree, Broad-Leaved Deciduous Tree

Concept Summary: This forested system occurs on broad upland flats in the East Gulf Coastal Plain of Mississippi and likely occurs in other parts of the region. Examples include a mosaic of open forests dominated by Pinus taeda interspersed with patches of Quercus phellos and sometimes other tree species. The ground surface displays an evident microtopography of alternating mounds and swales occurring in a tight local mosaic. These mounds are most likely "gilgai" (R. Wieland pers. comm.) resulting from vertic or shrink-swell properties of the Luinn Soil Series. Known examples display a range of moisture conditions from dry to wet. The wettest examples trap significant moisture from local rainfall events. These areas have ponded water for a minimum of several days at an interval and potentially for long periods of the year especially when evapotranspiration is lowest. The vegetation of this system supports a relatively low vascular plant diversity and thus may appear floristically similar to other pine-hardwood vegetation of the region. The dry portion of this vegetational mosaic is dominated by grassy ground cover (Chasmanthium sesiliflorum) with scattered emergent greenbriars (Smilax sp.) underneath a nearly pure Pinus taeda overstory. The historical composition of this type is unknown, but it seems likely that Pinus taeda was a natural and even dominant component of this system, as it is in related systems in the West Gulf Coastal Plain (R. Evans pers. obs., T. Foti pers. comm.). Wetter areas are dominated by an overstory of Quercus phellos with an abundance of Sabal minor in the understory. Although the specific role of fire in this system is unknown, low-intensity ground fires may have been ecologically important. Such fires could have originated in the surrounding East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest (CES203.506).

Map Value: 190　　　　*NLCD Code: 91*　　　　*NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code:　　　　CES411.290

SE-GAP Name:　　　　South Florida Dwarf Cypress Savanna

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Woody-Herbaceous, Extensive Wet Flat

Non-Diagnostic Classifiers:

Concept Summary: The scrub or dwarf cypress system covers extensive areas of south Florida, especially in the Big Cypress Swamp region of southwest Florida. These stunted stands of Taxodium ascendens grow on shallow sands or marl soils above limestone bedrock. Individual trees are usually quite small and widely scattered, with canopy coverage ranging from 30-45% (Flohrschultz 1978). The understory shares much overlap with wet prairies of the region (Drew and Schomer 1984) and is dominated by the following genera: Rhynchospora, Cyperus, Muhlenbergia, and Cladium. The open, stunted aspect is maintained in part by stresses imposed by extreme seasonal water level changes and low-nutrient soils (Anonymous 1978). Ewel (1990b) suggests a hydroperiod of approximately 6 months for this type.

Map Value: 191　　　　*NLCD Code: 91*　　　　*NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code:　　　　CES411.381

SE-GAP Name:　　　　South Florida Pine Flatwoods

SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Needle-Leaved Tree

Non-Diagnostic Classifiers: Woody-Herbaceous

Concept Summary: This system is endemic to Florida, ranging from approximatelyapproximatley Lee, Desoto, Highlands, and Okeechobee counties southward. It and was once an extensive system within its historic range. The vegetation is naturally dominated by Pinus elliottii var. densa, being largely outside the natural range of Pinus serotina, Pinus elliottii var. elliottii, and Pinus palustris. In natural condition, examples are generally open with a variety of low shrub and grass species forming a dense ground cover. Frequent, low-intensity fire was the dominant natural ecological force, but most areas have undergone long periods of fire suppression resulting in greater dominance of shrubs and saw palmetto, as well as denser canopies of slash pine (Huffman and Judd 1998, Noel et al. 1998).

Map Value: 192   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.480
SE-GAP Name: South-Central Interior/Upper Coastal Plain Wet Flatwoods
SE-GAP Description: Spatial Scale & Pattern: Large patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Woody Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree, Extensive Wet Flat

Non-Diagnostic Classifiers: Partially Isolated Wetland

Concept Summary: This system represents predominately wet flatwoods of limited areas of the most inland portions of the East Gulf Coastal Plain in western Kentucky, as well as related broad, flat areas of the western Interior Low Plateau. This part of the Coastal Plain is referred to as the Jackson Purchase or "Jackson Plain." Flatwoods have long been recognized as a distinctive subdivision within this region (Davis 1923, Bryant and Martin 1988). Examples in the Pennyroyal Plain (of the western Interior Low Plateau) have been referred to as "pondywoods" or "crawfishy land" (Chester et al. 1995), and have been known for many years. They tend to be confined to relatively small areas near the eastern flank of the region where loess deposits thin out. Unlike South-Central Interior / Upper Coastal Plain Flatwoods (CES203.479) of the same general region (which are typified by complex microtopography), this system occupies broad flats underlain by fragipans. These fragipans impede the downward migration of water resulting in wet conditions for portions of the year. Fire was an important natural process in this system, probably maintaining relatively open-canopied stands (M. Evans pers. comm.). Stands are dominated by hardwood trees, including Quercus spp., Liquidambar styraciflua, Carya spp., and Acer rubrum (Chester et al. 1995).

Map Value: 193   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES411.365
SE-GAP Name: South Florida Cypress Dome
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Depressional

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system is found primarily in the Everglades and Big Cypress regions. This system consists of small forested wetlands in poorly drained depressions which are underlain by an impervious layer that impedes drainage and traps precipitation. They receive their common name from the unique dome-shaped appearance in which trees in the center are higher than those around the sides (Monk and Brown 1965). Taxodium ascendens is the dominant tree, with the oldest and largest individuals characteristically occupying the center, and smaller and younger individuals around the margins. Pools of stagnant, highly acid water may stand in the center of these depressions ranging from 1-4 feet in depth, but becoming increasingly shallow along the margins. The understory flora is typified by species with tropical affinities.

Map Value: 194   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.501

SE-GAP Name: Southern Coastal Plain Hydric Hammock

SE-GAP Description:

> Spatial Scale & Pattern: Linear
>
> Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland
>
> Diagnostic Classifiers:
>
> Non-Diagnostic Classifiers: Forest and Woodland (Treed)
>
> Concept Summary: This system occupies flat lowlands usually over limestone substrates. Examples are generally small patches embedded within more extensive systems. In Alabama this system is apparently confined to floodplains of the Mobile-Tensas (A. Schotz pers. comm.) where examples are topographically higher than the surrounding floodplains. In Florida, this system may also occur inland from coastal communities and in association with springs and karst (FNAI 1990). Soils may range from sand to clayto organic. Vegetation is characterized by mixed hardwood species (FNAI 1997).

Map Value: 195   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.251

SE-GAP Name: Southern Coastal Plain Nonriverine Cypress Dome

SE-GAP Description:

> Spatial Scale & Pattern: Small Patch
>
> Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland
>
> Diagnostic Classifiers: Forest and Woodland (Treed), Needle-Leaved Tree, Depressional
>
> Non-Diagnostic Classifiers:
>
> Concept Summary: This system consists of small forested wetlands in poorly drained depressions of the Outer Coastal Plain; most are embedded in a matrix of pine flatwoods. They receive their common name from the unique dome-shaped appearance in which trees in the center are higher than those around the sides (Monk and Brown 1965). Taxodium ascendens is the dominant tree, with the oldest and largest individuals characteristically occupying the center, with smaller and younger individuals around the margins. Pools of stagnant, highly acidic water may stand in the center of these depressions ranging from 1-4 feet in depth, but becoming increasingly shallow along the margins. These sites are underlain by an impervious clay pan which impedes drainage and traps precipitation. Some examples may have thick (50 - 100 cm) organic layers. IN addition to Taxodium ascendens, other woody species may include Nyssa biflora, Cephalanthus occidentalis, Liquidambar styraciflua, Clethra alnifolia, Lyonia lucida, and Styrax americana.

Map Value: 199   *NLCD Code: 92*   *NLCD Class: PALUSTRINE SHRUB/SCRUB WETLAND*

SE-GAP Code: CES202.036
SE-GAP Name: Cumberland Riverscour
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Riparian mosaic, Riverine / Alluvial, Short (<5 yrs) Flooding Interval

Non-Diagnostic Classifiers: Lowland [Foothill], Woody-Herbaceous, Broad-Leaved Deciduous Tree, Broad-Leaved Deciduous Shrub

Concept Summary: Examples of this river scour-influenced system may occur on high-gradient and very high-gradient streams in the gorges of the Cumberland Plateau, the Cumberland Mountains, and the more rugged parts of the Ridge and Valley, in Kentucky, Tennessee, and Alabama, and possibly in Georgia. The succession of woody plants (particularly trees) is retarded by the force of "flashy", high-velocity water traveling down the stream channels. This system may occur on flood-scoured acidic or calcareous bedrock, cobble, pebble, or sandbar substrates of sandstone, limestone, dolomite, and possibly other sedimentary and weakly metamorphosed geologies. The most distinctive parts of the system are dominated by shrubs, perennial grasses, and forbs. In some areas, a riparian woodland composed of Betula nigra and Platanus occidentalis may be a component association. Some common shrub component species include Alnus serrulata, Betula nigra, Cephalanthus occidentalis, Cornus amomum, Fothergilla major, Itea virginica, Salix caroliniana, Rhododendron arborescens, Toxicodendron radicans, and Juniperus virginiana var. virginiana. Some grasses (typical of prairies) include Andropogon gerardii, Sorghastrum nutans, Schizachyrium scoparium, Chasmanthium latifolium, Tripsacum dactyloides and/or Panicum virgatum. Forbs are diverse and variable from occurrence to occurrence. This system is prone to flooding in the upper regions and deposition in the topographically lower areas. There is typically a gradient from dry acidic conditions higher on the bank to moist, fairly enriched conditions lower down may exist at any one site. It is prone to severe drought periods that may stress or kill some vegetation. Flood scouring is a powerful and ecologically important abrasive force along the riverbanks where this system is found.

Map Value: 203   *NLCD Code: 92*   *NLCD Class: PALUSTRINE SHRUB/SCRUB WETLAND*

SE-GAP Code: CES202.300

SE-GAP Name: Southern and Central Appalachian Bog and Fen

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Shrubland (Shrub-dominated), Seepage-Fed Sloping [Mineral], Seepage-Fed Sloping [Peaty]

Non-Diagnostic Classifiers: Graminoid

Concept Summary: This system consists of wetlands associated with flat sites in the Southern Blue Ridge, Central Appalachians, and possibly Upper Piedmont and adjacent Ridge and Valley. These sites occur at elevations below 4000 feet in poorly drained bottomlands on soils which are often saturated and mucky. Wetness results from a combination of ground water input, seepage from adjacent slopes, rainfall, and impeded drainage. The amount of seepage water input is variable between examples. Vegetation is at least partially open, with herbaceous-dominated areas as well as shrub thickets and often forested zones.

Map Value: 204   *NLCD Code: 93*   *NLCD Class: ESTUARINE FORESTED WETLAND*

SE-GAP Code: CES203.282

SE-GAP Name: Atlantic Coastal Plain Northern Tidal Wooded Swamp

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Tidal / Estuarine

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses tidally flooded deciduous forests and shrublands in lower river floodplains and edges of estuaries of the North Atlantic Coastal Plain. This system is restricted to narrow zones along upper tidal reaches of Inner Coastal Plain rivers and tributaries which have sufficient volumes of fresh water and short flooding to be able to support tree canopies. According to Fleming et al. (2001) these areas are influenced by lunar tides up to 1 m (3 feet), but diluting freshwater flows from upstream keep salinity levels below 0.5 ppt. Deciduous hardwood species predominate, especially Nyssa, and/or Fraxinus.

Map Value: 205   *NLCD Code: 93*   *NLCD Class: ESTUARINE FORESTED WETLAND*

SE-GAP Code: CES203.240
SE-GAP Name: Atlantic Coastal Plain Southern Tidal Wooded Swamp
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Tidal / Estuarine

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses the tidally flooded areas in lower river floodplains and edges of estuaries of the Atlantic Coastal Plain that have fresh enough water and short enough flooding to be able to support tree canopies. Taxodium, Nyssa, or Fraxinus generally dominate. Swamps may be either regularly flooded by lunar tides or irregularly flooded by wind tides.

Map Value: 206   *NLCD Code: 93*   *NLCD Class: ESTUARINE FORESTED WETLAND*

SE-GAP Code: CES203.299
SE-GAP Name: East Gulf Coastal Plain Tidal Wooded Swamp
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Riverine / Alluvial, Tidal / Estuarine

Non-Diagnostic Classifiers:

Concept Summary: This system encompasses the tidally flooded portions of river floodplains which flow into the northern Gulf of Mexico east of the Mississippi River. Large outflows of freshwater keep salinity levels at a minimum, and flooding is of short enough duration to allow survival of tree canopies. Taxodium, Nyssa, or Fraxinus generally dominate. These swamps may be regularly flooded at least twice daily (FNAI 1990).

Map Value: 207   *NLCD Code: 93*   *NLCD Class: ESTUARINE FORESTED WETLAND*

SE-GAP Code: CES411.289
SE-GAP Name: South Florida Mangrove Swamp
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Tidal / Estuarine

Non-Diagnostic Classifiers:

Concept Summary: This swamp system occurs along intertidal and supratidal shorelines in south Florida. The primary species comprising this system are Rhizophora mangle, Avicennia germinans, Laguncularia racemosa, and Conocarpus erecta, each with essentially tropical affinities and poor survival in cold temperatures. This system attains best development in low wave-energy, depositional environments. Examples occur on soils generally saturated with brackish water at all times, and which become inundated during high tides. The brackish environment tends to limit competition from other species. Although at least 3 broad variants of this systems can be recognized, riverine mangrove forests, fringe mangrove forests, and basin mangrove forests (Lugo et al. 1988), all are included here for now.

Map Value: 213   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.376
SE-GAP Name: Atlantic Coastal Plain Central Fresh-Oligohaline Tidal Marsh
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine [Oligohaline]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: his system represents tidally influenced fresh marsh and tidal shrublands ranging from approximately Morehead City, NC, southward to St. Johns River, FL [see Montague and Wiegert (1990)]. This system occurs where there is adequate river flow and discharge to maintain fresh to oligohaline conditions, while still within tidal range. These marshes most often occur well inside the mouths of tidal creeks and rivers. Elevation differences within the marsh correspond to the occurrence of different vegetation types.

Map Value: 214   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.259
SE-GAP Name: Atlantic Coastal Plain Embayed Region Tidal Freshwater Marsh
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine [Oligohaline]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: Embayed Region Tidal Freshwater Marshes are characterized by fresh to oligohaline waters which are driven by irregular wind tides, with minimal lunar tidal influence. They are the predominant marsh system in the drowned creeks and inland estuary shores of the Embayed Region of northeastern North Carolina and adjacent Virginia. This system typically occurs as complexes of several associations dominated by large graminoids such as Spartina patens, Cladium jamaicense, Schoenoplectus pungens, Typha angustifolia, Typha latifolia, and Juncus roemerianus, sometimes with species-rich associations of shorter graminoids, forbs, and floating or submerged aquatics. While some association dominants are tolerant of brackish water, they are associated with plants restricted to oligohaline or freshwater. Irregular flooding and fire are both important forces in this system, and rising sea level is a particularly important driver of long-term trends.

Map Value: 215   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.516
SE-GAP Name: Atlantic Coastal Plain Northern Fresh and Oligohaline Tidal Marsh
SE-GAP Description: Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes freshwater tidal vegetation occurring on the upper reaches of large rivers influenced by tidal flooding, but beyond the reach of the salt wedge. The system is best developed on the Chesapeake and Delaware Bay drainages, including the rivers of southern New Jersey. The system extends northeast and includes inland portions of the Hudson River, Connecticut River, and the Merrimac River and their tributaries. The vegetation includes tall marshes dominated by tall grasses such as Zizania aquatica, marshes of lower stature dominated by forbs such as Amaranthus cannabinus, Hibiscus moscheutos and others, and vegetation characterized by short-statured and rosette-forming forbs such as Eriocaulon parkeri and Isoetes riparia. Associations are distributed by proximity to tidal waters and thus duration and force of flooding. Sediments of more protected and isolated vegetation is comprised of finer-grained materials that are poorly drained, or of well-consolidated peat deposits. Vegetation exposed to greater flooding force and scouring action is supported by mineral substrates such as sand and gravel.

Map Value: 216   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.507
SE-GAP Name: Florida Big Bend Fresh-Oligohaline Tidal Marsh
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes tidal freshwater and oligohaline marshes of the northern Gulf of Mexico along the Florida Big Bend area (roughly from Wakulla County to the Pasco/Hernando county line on Florida's west coast). The tidal range in this region is higher than in the western Panhandle, and wave energy is low; lunar, wind and seasonal tides make flooding irregular (Montague and Wiegert 1990). In comparison to the matrix-forming salt and brackish marshes of the same region, this system is confined to small patches that are generally restricted to areas near the mouths of rivers where freshwater is abundant.

Map Value: 217   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.258
SE-GAP Name: Atlantic and Gulf Coastal Plain Interdunal Wetland
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Coast, Depressional

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system of the Atlantic and Gulf Coastal Plain encompasses the wettest dune swales and basins on barrier islands and coastal areas, supporting pond or marsh-like vegetation. Most examples are permanently or semipermanently flooded with freshwater, but are affected by salt spray or overwash during periodic storm events.

Map Value: 218   *NLCD Code:96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.262
SE-GAP Name: Atlantic Coastal Plain Depression Pondshore
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Woody-Herbaceous, Coastal plain, Depressional [Pond]

Non-Diagnostic Classifiers:

Concept Summary: This system consists of wetlands in small basins formed in unconsolidated sediments of the Atlantic Coastal Plain. This system also occurs in limited, highly disjunct occurrences on sand lakeplain near southern Lake Michigan. Most basins are formed by subsidence of surface sediments caused by solution in underlying limestone. Others may be formed as swales in mainland eolian sands, natural blockage of small drainages by sediment movement, and more obscure causes. Soils are generally sandy, with mucky surfaces in the wettest areas. Vegetation is often zonal in response to variation in duration of flooding in different parts of the depression pond. Vegetation usually ranges from open water or floating-leaved aquatics in the centers of the deepest basins, to emergent marsh zones in semipermanent water, to drawdown zones with diverse small graminoid and forb vegetation, to dense shrub or woodland edge zones. A smaller number of basins may have emergent trees throughout their extent. Hydroperiod can vary substantially from year to year, and vegetation can similarly vary significantly in aspect and dominants. Besides flooding and its variation, fire is an important natural force in the outer, drier portions.

Map Value: 219   *NLCD Code:96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.044
SE-GAP Name: Atlantic Coastal Plain Large Natural Lakeshore
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Woody-Herbaceous, Coastal plain, Depressional [Pond]

Non-Diagnostic Classifiers:

Concept Summary: This system consists of wetland vegetation along large natural lakeshores of the Atlantic Coastal Plain in southeast Virginia and North Carolina. These are apparently the only natural lakes found in the Mid-Atlantic Coastal Plain; examples are absent from South Carolina and Georgia. Hydroperiod remains relatively constant from year to year, especially when compared to smaller limesink depressions of the region. Vegetation may appear to be zonal in relationship to distance from the lakeshore and may range from open water or floating-leaved aquatics in the deeper waters of the lakes, to emergent marsh zones along the edges. In some cases there are wet hardwood swamps present.

Map Value: **221**   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.890
SE-GAP Name: Central Florida Herbaceous Pondshore
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Herbaceous, Graminoid, Depressional

Non-Diagnostic Classifiers:

Concept Summary: This system includes a variety of seasonal depression ponds in central Florida, especially along the Lake Wales Ridge. Examples are rounded or irregularly shaped, shallow depressions from tens to hundreds of meters in diameter (Abrahamson et al. 1984). Extensive variation is present based on the variety of soils and resultant hydroperiods. Most examples exhibit some zonation in vegetation and nearly all are ringed by Serenoa repens. Characteristic or dominant species associated with the interior of the ponds include Panicum hemitomon, Panicum abscissum, Hypericum edisonisanum, and Andropogon brachystachys.

Map Value: **223**   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.504
SE-GAP Name: East Gulf Coastal Plain Southern Depression Pondshore
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Depressional [Vernal Pool]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This small-patch system occupies rounded depressions in the southern portions of the East Gulf Coastal Plain. Most examples occur in the near-coastal flatlands (sensu Peet and Allard 1993) and tend to occupy basins that were formed by subsidence of surface sediments caused by solution in underlying limestone or as swales in eolian sand deposits. Soils are generally sandy in basins of both types or origin. Hydroperiod can vary substantially from year to year, and vegetation can similarly vary significantly in aspect and dominants. Fire is an important natural force in the outer, drier portions of many examples, and periodic fires may sweep through the interior during dry periods. Vegetation may exhibit distinct zonation in response to variation in duration of flooding. Communities can range from floating aquatic types (in the centers of the deepest basins) to emergent herbaceous zones (in semipermanent water drawdown zones) to sparse, yet diverse, small graminoid and forb herbaceous vegetation to bald cypress woodland edges. Some examples may have emergent trees throughout their extent.

Map Value: 225	*NLCD Code:96*	*NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.245b

SE-GAP Name: Atlantic Coastal Plain Clay-Based Carolina Bay Herbaceous Wetland

SE-GAP Description:

Spatial Scale & Pattern: Small patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Woody Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Depressional, Graminoid

Non-Diagnostic Classifiers: Partially Isolated Wetland

Concept Summary: This system consists of wetlands associated with ovoid, shallow depressions with nearly flat bottoms in parts of the Atlantic Coastal Plain. Often called Carolina bays, these areas are most numerous and extensive in South Carolina but are also present in the Inner Coastal Plain of North Carolina. The depressions have mineral soils with clay hardpans that trap and retain water from a combination of rainfall and exposure of a high regional water table. Some examples are essentially permanently flooded, while others support water levels that vary substantially from year to year and over longer climatic cycles. Vegetation includes a series of primarily herbaceous and woodland associations. The wettest sites have open water and floating-leaved aquatic vegetation, or marsh vegetation of tall graminoids. Drier sites often have an open canopy of Taxodium ascendens, with a dense, often fairly species-rich herbaceous layer beneath. A few occurrences are shrubby, but none contain the dense shrub layers of characteristic pocosin species that occur in the bays with organic soils. Vegetational composition often varies substantially from year to year, in response to differences in water levels and drawdown times. Variation in hydroperiod is the most important dynamic, causing rapid major changes in the herbaceous vegetation. Unlike the steeper-sided solution depressions, where many different hydroperiods are present within a short distance and vegetation zones simply shift, the flat-bottomed Carolina bays experience drastic yearly changes in hydroperiod over most of their extent. Fire periodically spreads into the bays from adjacent uplands when conditions are dry, helps prevents invasion by less water-tolerant trees during dry periods, and interacts with flooding to affect vegetational composition. Where fire is removed, Pinus taeda often invades the bays. Fire may also be important in preventing buildup of organic matter on the soil surface.

Map Value: 227	*NLCD Code:96*	*NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.491

SE-GAP Name: Central Florida Herbaceous Seep

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Seepage-Fed Sloping

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes herbaceous seepage wetlands limited to central Florida. Although they are subject to seepage influence and saturated hydrology typical of other Atlantic and Gulf Coastal Plain seeps, these are characterized by the presence of subtropical plant species not occurring in herbaceous seeps further north, especially Panicum abscissum. Like other Coastal Plain seeps these are associated with areas of greater topography than is common locally, generally in the southern part of the Lake Wales Ridge.

Map Value: 228　　　*NLCD Code: 96*　　　*NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code:　　　CES203.077

SE-GAP Name:　　　Floridian Highlands Freshwater Marsh

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Depressional [Sinkhole]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system represents non-tidal marsh vegetation in the penisula of Florida. These highlands marshes occupy different types of depressions such as former lake basins, shallow peat filled valleys, and zones around existing natural lakes (Kushlan 1990). The marshes and the basins they occur within are unstable over time due to subsurface subsidence and drainage pattern changes. In some examples, surface water flow is generally lacking due to the presence of limestone near the surface, but water levels have fluctuated greatly over time (Patton and Judd 1986). Soils range from mucky surfaces to sandy loams or sands, but slowly permeable subsoils contribute to the presence of standing water for much of the year. The vegetation mosaic includes a range of mostly herbaceous plant communities that may be referred to as marshes, meadows, and prairies; collectivelly comprising a relatively diverse number of associations. Permanent water bodies support a range of submerged and floating aquatic species. Areas with approximatley a meter of standing water depth tend to support dense stands of emergent herbaceous perennials, often in monospecific stands; species include Typha latifolia, Pontedaria cordata, Nelumbo lutea, and others. Where water is less (usually present only during wet season) more graminoid vegetation is present, with species such as Panicum hemitomon, Leersia hexandra, and other species. With historic water level fluctuations, the vegetation mosaic has also changed, sometimes quite rapidly.

Map Value: 229　　　*NLCD Code: 96*　　　*NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code:　　　CES411.485

SE-GAP Name:　　　South Florida Freshwater Slough and Gator Hole

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Depressional [Peaty], >180-day hydroperiod

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes open wetlands of south Florida. These are some of the longest hydroperiod wetlands (8-12 months) in a region characterized by wetlands. Most are maintained, at least historically, by American Alligators. Alligators were such a dominant disturbance force in many plant communities of south Florida that their role has been compared with that of bison in the prairies (Craighead 1971). Through constant movement they create numerous small pools and ponds (analogous to buffalo wallows) as well as trails to and from these pools through sawgrass marshes. These paths eventually widen and deepen into creeks. Many of these small freshwater creeks have been invaded by mangroves and hardwoods in the absence of fire and decrease in Alligator populations (Craighead 1971). Some emergent wetlands included within the concept of this system may also have originated from soil and topographic changes in former sawgrass marshes following severe fires that consume organic substrate and decrease soil elevation (Gunderson and Loope 1982).

Map Value: 231   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.078
SE-GAP Name: Southern Coastal Plain Herbaceous Seepage Bog
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Seepage-Fed Sloping

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This small-patch ecological system includes wet, fire-maintained, seepage communities in the northern Gulf of Mexico region, east of the Mississippi River in Mississippi, Alabama, and northern Florida. These wetlands are generally found on gentle, almost imperceptible slopes maintained by constant seepage zones and/or perched water tables. Examples are typically grass and sedge dominated, and are often species-rich. Pitcher plants (Sarracenia spp.) are notable indicators of many community types in this system. Shrubs frequently encroach in the absence of fire; due to greater topographic isolation, the most interior examples are often naturally shrubbier.

Map Value: 233   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.192
SE-GAP Name: East Gulf Coastal Plain Treeless Savanna and Wet Prairie
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Very Short Disturbance Interval, Graminoid, Extensive Wet Flat

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This ecological system of western Florida and adjacent Alabama and Mississippi, may be considered a "lush grassland" (Kindell et al. 1997), "grass-sedge savannah" (Clewell 1981), wet prairie (FNAI 1990), or wet savanna (Collins et al. 2001). As implied by these names, this system consists of primarily herbaceous vegetation with relatively thick cover of grasses and sedge species. Examples occupy low, flat plains on poorly drained soils, often saturated for 50-100 days per year. Frequent fires, including growing-season burns, are essential for maintenance of this system. Some examples have a sparse tree component of Pinus elliottii or Pinus palustris and scattered shrubs, such as Morella cerifera.

Map Value: 234   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES411.370
SE-GAP Name: South Florida Wet Marl Prairie
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes marl prairies of the southern Florida Everglades region and related vegetation of the Florida Keys. This system occurs only on shallower soils with bedrock close to the surface (Gunderson and Loftus 1993). Composition and variability in this system is heavily influenced by hydrology, with the predominant community type occurring on seasonally flooded (3-7 months per year) soils; with diminished hydroperiod species composition changes (Hilsenbeck et al. 1979). Possibly the most unique vegetational component are small-patch communities found on elevated areas of oolitic rocks referred to as pinnacle rock (Gunderson and Loftus 1993) or table rock (Hilsenbeck et al. 1979).

Map Value: 238   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.489b
SE-GAP Name: East Gulf Coastal Plain Large River Floodplain Forest - Herbaceous Modifier
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers:

Variation: Herbaceous - Areas dominated by wetland herbaceous or shrubs (buttonbush, swamp-loosestrife, swamp private).

Other Variation(s): Forested.

Concept Summary: This system represents a geographic subset of Kuchler's (1964) Southern Floodplain Forest. Examples may be found along large rivers of the East and Upper East Gulf Coastal Plain, especially the Apalachicola, Alabama, Tombigbee, Pascagoula, and Pearl rivers, all of which ultimately drain into the Gulf of Mexico. Several distinct plant communities can be recognized within this system that may be related to the array of different geomorphologic features present within the floodplain. Some of the major geomorphic features associated with different community types include natural levees, point bars, meander scrolls, oxbows, and sloughs (Sharitz and Mitsch 1993). Vegetation generally includes forests dominated by bottomland hardwood species and other trees tolerant of flooding. However, herbaceous and shrub vegetation may be present in certain areas as well.

Map Value: 240 *NLCD Code: 96* *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES202.705b

SE-GAP Name: South-Central Interior Large Floodplain - Herbaceous Modifier

SE-GAP Description: Spatial Scale & Pattern: Linearmedium

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Herbaceous, Floodplain

Variation: Herbaceous - Herbaceous sloughs and shrub wetlands (canebrakes, sedges, and buttonbush) that occur within the floodplain.

Otther Variation(s): Forested.

Concept Summary: This floodplain system is found throughout the Interior low Plateau, Cumberlands, Southern Ridge and Valley, Western Allegheny Plateau, and lower elevations of the Southern Blue Ridge. Examples occur along large rivers where topography and alluvial processes have resulted in a well-developed floodplain. A single occurrence may extend from river's edge across the outermost extent of the floodplain or to where it meets a wet meadow or upland system. Many examples of this system will contain well-drained levees, terraces and stabilized bars, and some will include herbaceous sloughs and shrub wetlands resulting, in part, from beaver activity. A variety of soil types may be found within the floodplain from very well-drained sandy substrates to very dense clays. It is this variety of substrates in combination with different flooding regimes that creates the mix of vegetation. Most areas, except for the montane alluvial forests, are inundated at some point each spring; microtopography determines how long the various habitats are inundated. Although vegetation is quite variable in this broadly defined system, examples may include Acer saccharinum, Platanus occidentalis, Liquidambar styraciflua, and Quercus spp. Understory species are mixed, but include shrubs, such as Cephalanthus occidentalis and Arundinaria gigantea ssp. gigantea, and sedges (Carex spp.). This system likely floods at least once annually and can be altered by occasional severe floods. Impoundments and conversion to agriculture can also impact this system.

Map Value: 245 *NLCD Code: 97* *NLCD Class: ESTUARINE EMERGENT WETLAND*

SE-GAP Code: CES203.270

SE-GAP Name: Atlantic Coastal Plain Central Salt and Brackish Tidal Marsh

SE-GAP Description: Spatial Scale & Pattern: Matrixhigh

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine [Haline]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system encompasses the brackish to salt intertidal marshes of the Atlantic Coast, from south of the Embayed Region of North Carolina to northern Florida. It is dominated by medium to extensive expanses of Spartina alterniflora, flooded twice daily by lunar tides. Juncus roemerianus and other brackish marshes occur upstream in tidal creeks, and a variety of small-patch associations occur near the inland edges.

Map Value: 246   *NLCD Code: 97*   *NLCD Class: ESTUARINE EMERGENT WETLAND*

SE-GAP Code: CES203.260
SE-GAP Name: Atlantic Coastal Plain Embayed Region Tidal Salt and Brackish Marsh
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine [Haline]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system encompasses the brackish to salt intertidal marshes of the Embayed Region of southeastern Virginia and adjacent North Carolina. It is distinguished by the extensive brackish water and wind tidal flooding characteristic of that region. Low diversity, often monospecific, marshes are found on intertidal flats generally cut off from direct oceanic influence by a series of protective barrier islands. Embedded within the matrix of marshes are smaller hypersaline areas or salt pannes.

Map Value: 247   *NLCD Code: 97*   *NLCD Class: ESTUARINE EMERGENT WETLAND*

SE-GAP Code: CES203.257
SE-GAP Name: Atlantic Coastal Plain Indian River Lagoon Tidal Marsh
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This tidally influenced marsh system of the Indian River Lagoon along Florida's Atlantic Coast supports approximately 10% of the salt marshes in Florida (Montague and Wiegert 1990). The bulk of these are "high marshes" wholly above mean high water levels. They are protected from direct exposure to the Atlantic Ocean by perched barrier islands, and consequently receive natural inundation only from wind tides and seasonal sea level changes. A berm or levee generally separates these high marshes from lower fringing marshes of Spartina alterniflora (to the north) and Rhizophora mangle (to the south). Landward of this berm, salt flats or hypersaline zones often develop with Salicornia, Distichlis spicata, Borrichia frutescens, Batis maritima, and Paspalum vaginatum. In some areas these species occur in monospecific zones, while in others they co-occur, grading into occasional Avicennia germinans. These zones are followed by a typical Juncus roemerianus zone, and the most inland fringes may be dominated by Spartina bakeri. Marshes of this region have been heavily altered by mosquito control impoundments of the 1950s and 1960s.

Map Value: 248   *NLCD Code:97*   *NLCD Class: ESTUARINE EMERGENT WETLAND*

SE-GAP Code: CES203.519
SE-GAP Name: Atlantic Coastal Plain Northern Tidal Salt Marsh
SE-GAP Description: Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine, North Atlantic Coastal Plain

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system encompasses the mesohaline to saline intertidal marshes of the North Atlantic Coastal Plain, ranging from Chesapeake Bay north to the central Maine coast. It includes a number of different broad vegetation types including salt pannes, salt marshes, and salt shrublands. This system occurs on the bay side of barrier beaches and the mouth of tidal rivers where salinity is not much diluted by freshwater input. This system also includes the rare sea-level fen vegetation, which occurs at the upper reaches of the salt marsh where groundwater seepage creates a freshwater fen. The typical salt marsh profile, from sea to land, can be summarized as follows: a low regularly flooded marsh strongly dominated by Spartina alterniflora; a higher irregularly flooded marsh dominated by Spartina patens and Distichlis spicata; low hypersaline pannes characterized by Salicornia spp.; and a salt scrub ecotone characterized by Iva frutescens, Baccharis halimifolia, and Panicum virgatum. Salt marsh "islands" of slightly higher elevation also support Juniperus virginiana.

Map Value: 249   *NLCD Code:97*   *NLCD Class: ESTUARINE EMERGENT WETLAND*

SE-GAP Code: CES203.508
SE-GAP Name: Florida Big Bend Salt-Brackish Tidal Marsh
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system represents salt and brackish marshes of the northern Gulf of Mexico along the Florida Big Bend (roughly from Wakulla County to the Pasco/Hernando county line on Florida's west coast). The tidal range here is higher than in the western Panhandle, and wave energy is low; lunar, wind and seasonal tides make flooding irregular (Montague and Wiegert 1990). The bulk of these marshes are comprised of monospecific stands of Juncus roemerianus that often exhibit tall and short growth zones. Less common are patches of Spartina alterniflora, which may be confined to the edges of creeks or in other pockets of low elevation; small patches of Distichlis spicata may also be present near berms or levees (Montague and Wiegert 1990).

Map Value: 250   *NLCD Code:97*   *NLCD Class: ESTUARINE EMERGENT WETLAND*

SE-GAP Code: CES203.303
SE-GAP Name: Mississippi Sound Salt and Brackish Tidal Marsh
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Tidal / Estuarine [Haline]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes salt and brackish tidal marshes of the northern Gulf of Mexico region of northwestern Florida, southern Alabama, and southeastern Mississippi. These marshes are typically associated with mud-bottomed bays behind barrier islands. Wind-dominated tides and low tidal amplitudes (<1 meter) characterize this region. This system includes predominately brackish marshes, and supports what is probably the largest zone of Juncus roemerianus in the Atlantic and Gulf Coastal Plain outside of the North Carolina/Virginia Embayed Region estuarine marshes.

Map Value: 251   *NLCD Code:97*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES411.286
SE-GAP Name: South Florida Everglades Sawgrass Marsh
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Graminoid, Extensive Wet Flat

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This marsh system was a dominant type throughout much of the Everglades region of southeastern Florida. It consists largely of herbaceous marsh vegetation across a range of soil and hydrological conditions, but generally fall within conditions outlined by Duever et al. (1986), hydroperiod of 225-275 days per year, maximum wet-season water level of 40 cm., and occurrence on peat soils. Several individual marsh community associations have been recognized based on species composition, structure, and aspect. Variations are largely due to the interrelated effects of fire, soils, and hydroperiod. Sawgrass beds or "glades" may have been the single most extensive component of this system (Hilsenbeck et al. 1979), and large areas may have the appearance of nearly monotypic stands of Cladium jamaicense. However, local variation in composition and stature are also often apparent. For example, two broad aspect types of Cladium marsh are often recognized based on density and/or height (Kushlan 1990, Gunderson and Loftus 1993) with denser and taller stands typically occurring on higher topographic positions and deeper organic soils, while sparser, shorter stands occur in lower topography on shallower soils. In addition, other marsh types are also interfingered in the sawgrass matrix where wetter depressions are found and/or where fires have burned away peat soils.

Map Value: 253   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.886b

SE-GAP Name: Southern and Central Appalachian Oak Forest - Xeric

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Ridge/Summit/Upper Slope, Unglaciated, Broad-Leaved Deciduous Tree, Quercus - Carya

Non-Diagnostic Classifiers:

Concept Summary: This system consists of dry-mesic to dry oak forests occurring on open and exposed topography at lower to mid elevations in the Southern Blue Ridge, Southern Ridge and Valley, and Central Appalachians ecoregions. Vegetation consists of forests dominated most typically by Quercus prinus, Quercus alba, Quercus rubra, and Quercus coccinea, with varying amounts of Carya spp., Acer rubrum, and other species. This system concept also includes many successional communities that have been impacted by logging or agriculture such as types dominated by Liriodendron tulipifera, Pinus spp., and Robinia pseudoacacia.

Map Value: 256   *NLCD Code: 92*   *NLCD Class: PALUSTRINE SHRUB/SCRUB WETLAND*

SE-GAP Code: CES202.018

SE-GAP Name: Central Interior Highlands and Appalachian Sinkhole and Depression Pond

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Lowland [Lowland], Muck , Mineral: W/ A Horizon >10 cm, Depressional [Pond], Depressional [Sinkhole]

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Alkaline Water, Circumneutral Water

Concept Summary: This system is found in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions, as well as the adjacent Appalachian region. Stands occur in basins of sinkholes or other isolated depressions on uplands. Soils are very poorly drained, and surface water may be present for extended periods of time, rarely becoming dry. Water depth may vary greatly on a seasonal basis, and may be a meter deep or more in the winter. Some examples become dry in the summer. Soils may be deep (100 cm or more), consisting of peat or muck, with parent material of peat, muck or alluvium. Ponds vary from open water to herb-, shrub-, or tree-dominated systems. Tree-dominated examples typically contain Quercus species or Nyssa species, or a combination of these. In addition, Liquidambar styraciflua may be present in southern examples. Cephalanthus occidentalis is a typical shrub component.

Map Value: 257   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.023a
SE-GAP Name: Southern Piedmont Dry Oak-Heath Forest - Hardwood Modifier
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed)

Non-Diagnostic Classifiers:

Variation: Hardwood - Sites without a significant pine component, oaks dominate (scarlet, black, chestnut).

Other Variation(s): Mixed, Viginia/ Pitch Pine Dominated.

Concept Summary: This system occupies dry rolling to somewhat dissected uplands of the Piedmont of Virginia and adjacent Maryland where it forms the vegetational matrix. These uplands are underlain by plutonic, felsic metamorphic and acidic metasedimentary rocks. Natural vegetation is dominated by dry, mixed oak forests with ericaceous understories. The heavily ericaceous-dominated understories (especially Kalmia latifolia and Gaylussacia baccata) help to distinguish this system from Southern Piedmont Dry Oak-(Pine) Forest (CES202.339). Elsewhere in the southern Piedmont these species are largely confined to mountainous regions and monadnocks of the inner Piedmont. In addition, Quercus prinus exhibits the same pattern, and Pinus taeda, a common successional tree in the southern Piedmont, is largely absent. Quercus alba is the most abundant and constant oak found in intact examples of this system along with variable associates of Quercus coccinea, Quercus velutina, and Quercus prinus. Embedded submesic ravines and concave landforms support slightly more diverse forests characterized by mixtures of oaks, several hickories, Cornus florida, and sometimes Liriodendron tulipifera. Increased site disturbance generally leads to secondary forest vegetation with a greater proportion of Pinus virginiana, Pinus echinata, and weedy hardwoods such as Acer rubrum.

Map Value: 258   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.023b
SE-GAP Name: Southern Piedmont Dry Oak-Heath Forest - Virginia/Pitch Pine Modifier
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed)

Non-Diagnostic Classifiers:

Variation: Virginia/ Pitch Pine - Sites strongly dominated by by pines (Virginia, pitch).

Other Variation(s): Hardwood, Mixed.

Concept Summary: This system occupies dry rolling to somewhat dissected uplands of the Piedmont of Virginia and adjacent Maryland where it forms the vegetational matrix. These uplands are underlain by plutonic, felsic metamorphic and acidic metasedimentary rocks. Natural vegetation is dominated by dry, mixed oak forests with ericaceous understories. The heavily ericaceous-dominated understories (especially Kalmia latifolia and Gaylussacia baccata) help to distinguish this system from Southern Piedmont Dry Oak-(Pine) Forest (CES202.339). Elsewhere in the southern Piedmont these species are largely confined to mountainous regions and monadnocks of the inner Piedmont. In addition, Quercus prinus exhibits the same pattern, and Pinus taeda, a common successional tree in the southern Piedmont, is largely absent. Quercus alba is the most abundant and constant oak found in intact examples of this system along with variable associates of Quercus coccinea, Quercus velutina, and Quercus prinus. Embedded submesic ravines and concave landforms support slightly more diverse forests characterized by mixtures of oaks, several hickories, Cornus florida, and sometimes Liriodendron tulipifera. Increased site disturbance generally leads to secondary forest vegetation with a greater proportion of Pinus virginiana, Pinus echinata, and weedy hardwoods such as Acer rubrum.

Map Value: 259   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.268
SE-GAP Name: Southern Piedmont Mafic Hardpan Woodland
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Clay Soil Texture, Broad-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This Piedmont system occurs in places where a particularly dense clay hardpan has developed over a range of typically mafic rocks, sometimes with more limited areas of shallow glade-like vegetation. In the deeper soil portions of this system the density of the clay, in combination with its shrink-swell properties, limits water and root penetration into the soil and creates xeric conditions for plants despite the presence of a deep soil. Possibly most typical of this system is an open forest or woodland of Quercus stellata, with Quercus marilandica as a characteristic associate. The open canopy leads to a better developed herb layer than in most Piedmont forests, one that is usually grassy. Some of these sites may have once supported open prairies or prairie savannas when they burned more frequently. Fire was probably once the most important natural dynamic process, but the universal elimination of fire in the Piedmont makes this difficult to observe on most of the modern landscape.

Map Value: 260   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.288
SE-GAP Name: Southern Appalachian Spray Cliff
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate)

Non-Diagnostic Classifiers:

Concept Summary: This system consists of rock outcrops that are kept wet by spray from waterfalls, primarily in the Southern Blue Ridge, and possibly elsewhere in the Southern Appalachians region. The rocks are often densely or moderately covered with bryophytes or algae. The sparse vascular vegetation is limited to plants growing on bare rock, small ledges, and crevices.

Comments: This system is distinguished from all others in its range by its being kept wet by spray. Other outcrop systems, especially Southern Appalachian Montane Cliff (CES202.330), may have local wet areas created by seepage, but will be dominated by dry microsites. Other interpretations of this system are that it could be combined with other cliff systems of the Appalachians (S. Gawler pers. comm., D. Faber-Langendoen pers. comm).

Map Value: 261   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.298

SE-GAP Name: Southern Piedmont Seepage Wetland

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Seepage-Fed Sloping

Non-Diagnostic Classifiers:

Concept Summary: This Piedmont system consists of seepage-fed wetlands on gentle slopes, with substantial seepage flow. Vegetation is variable, both within and among examples. Included are hillside seepage bogs with substantial boggy flora and with strong influence by fire, and lower slope and floodplain edge seeps with forb-dominated vegetation.

Map Value: 262   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES202.317

SE-GAP Name: Southern Appalachian Seepage Wetland

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Seepage-Fed Sloping

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system consists of seepage-fed wetlands in the Southern Appalachians on gentle slopes, with substantial seepage flow. Vegetation is variable, both within and among examples, but lacks vegetation characteristic of bogs or floodplains. This is a small-patch system occurring over a wide elevational range, nearly to the highest peaks, but is generally lacking from flat valley bottoms.

Map Value: 263   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES202.324b

SE-GAP Name: Southern Piedmont Large Floodplain Forest - Herbaceous Modifier

SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Variation: Herbaceous - Herbaceous or shrub dominated vegetation with in the floodplain.

Other Variation(s): Forested.

Concept Summary: This system consists of vegetated communities along Piedmont rivers, south of the James River in Virginia, where flooding and flood-related environmental factors affect vegetational composition and dynamics. Well-developed examples of this system occur in the Triassic basins. The vegetation includes both non-forested bar and scour communities and the more extensive forested floodplain communities. Forests are generally differentiated by depositional landforms such as levees, sloughs, ridges, terraces, and abandoned channel segments. The system is affected by flooding through wetness, scouring, deposition of material, and input of nutrients.

Map Value: 264   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.338

SE-GAP Name: Alabama Ketona Glade and Woodland

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This system consists of open glades and related vegetation on Ketona dolomite slopes found in Bibb County, Alabama, in the vicinity of the Little Cahaba River. The vegetation includes herbaceous, shrubland, and open woodlands, which occur on thin soils or outcrops of Ketona dolomite. Juniperus virginiana, Quercus muehlenbergii, Pinus palustris, Croton alabamensis, Sabal minor, and Leptopus phyllanthoides are the dominant woody plants of the woodlands. The system supports eight endemic and numerous disjunct plant taxa and has very high conservation value based on rare plants.

Map Value: 265	*NLCD Code: 96*	*NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES202.346

SE-GAP Name: Western Highland Rim Seepage Fen

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Seepage-Fed Sloping

Non-Diagnostic Classifiers: Shrubland (Shrub-dominated)

Concept Summary: This system accommodates small-scale, herbaceous-dominated seepage areas found in a limited area of the Western Highland Rim region of Tennessee. These features have been generally known as "seepage fens," and are fed by mineral-rich groundwater. Examples are associated with stream drainages, but are generally not affected by stream-related hydrology. Soils contain a thin organic layer over limestone gravel, over a less permeable layer of more solid rock. The vegetation is dominated by herbaceous plants. Characteristic species include Carex atlantica, Carex lurida, Carex leptalea ssp. harperi, Parnassia grandifolia, Juncus brachycephalus, Rudbeckia fulgida var. umbrosa, Cardamine bulbosa, Impatiens capensis, Juncus coriaceus, Juncus effusus, Lobelia puberula, Lobelia cardinalis, Oxypolis rigidior, Phlox glaberrima, Rhynchospora capitellata, Scirpus atrovirens, Scirpus cyperinus, Solidago patula var. patula, and Thelypteris palustris var. pubescens. Woody species include Alnus serrulata, Salix humilis, Salix caroliniana, Cornus amomum, and Acer rubrum, which may invade the herbaceous seep. This system is restricted to the Western Highland Rim of Tennessee (Lewis, Cheatham, and Williamson counties). Xyris tennesseensis is endemic to this system and occurs in 50% or more of its occurrences. There are rare occurrences of this system in the Eastern Highland Rim of Tennessee and limited areas of Kentucky.

Map Value: 266	*NLCD Code: 42*	*NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES202.347

SE-GAP Name: Appalachian Serpentine Woodland

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This system consists of distinct vegetation associated with ultramafic rock substrates in the Piedmont and Blue Ridge. Most examples are open woodlands with Pinus rigida and/or Quercus alba and Quercus stellata in the often stunted canopy. Extreme edaphic conditions lead to locally xerophytic growing conditions that contribute to relatively open canopies and often grassy ground cover. Unusual and extreme soil chemistry is the primary ecological factor, but fire is an important factor in determining vegetation structure and dynamics.

Map Value: 267   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.348

SE-GAP Name: Southern and Central Appalachian Mafic Glade and Barrens

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades, Shallow Soil

Non-Diagnostic Classifiers:

Concept Summary: This Southern and Central Appalachian system consists of vegetation associated with shallow soils over predominately mafic bedrock, usually with significant areas of rock outcrop. Bedrock includes a variety of igneous and metamorphic rock types such as greenstone and amphibolite. These areas support a patchy mosaic of open woodland and grassy herbaceous vegetation sometimes with a predominant woody short-shrub community present.

Map Value: 268   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.349

SE-GAP Name: Allegheny-Cumberland Sandstone Box Canyon and Rockhouse

SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate)

Non-Diagnostic Classifiers:

Concept Summary: This system includes a mosaic of cavelike features (often called "rockhouses") and associated sandstone box canyons in the western Appalachian foothills regions of Kentucky, Alabama, West Virginia, and possibly southeastern Ohio. The rockhouses are the most unique and diagnostic feature of the system. The unusual geological features are created by spray and rock-cracking from seasonal flowing waterfalls at the heads of canyons amidst thick layers of sandstones from the Pennsylvanian geological period. The ceiling of the rockhouse may be 50 meters tall, and they can be as much as 100 meters deep. They require sufficient flowing water and freezing and thawing to weather the thick beds of sandstone. These conditions seem to be restricted to the western margin of the Appalachian Plateau. Examples of this system usually include a vegetational mosaic that includes hemlock bluffs, sandstone cliffs, overhangs near the base of a cliff (often with sandy area beneath the overhang which is shaded and protected from direct rainfall, as well as glade-like vegetation at the horizontal portion of the cliffs). The rockhouses in the southern parts of the range are habitats for the rare vascular plant species such as Minuartia cumberlandensis and Ageratina luciae-brauniae and sometimes support populations of rare nonvascular plants.

Map Value: 269   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES202.352
SE-GAP Name: Western Highland Rim Prairie and Barrens
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Deep Soil, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: As noted by Shanks (1958) and described by DeSelm (1989), these barrens occur, at least in part, on Cretaceous gravels which cap Mississippian limestone strata on hills in the Tennessee counties of Dickson, Hickman, Lewis, and Lawrence (these mapped in Miller et al. 1966). The terrain is flat to gently sloping. Shanks (1958) also specifically refers to barrens on "cherty residuum, elsewhere characterized by Planosols with impeded drainage." Some proposed factors which have functioned to maintain their openness include the droughty, gravelly soils and resulting stresses to vegetation, as well as fire. The same gravels are mapped in the TVA Land Between the Lakes (LBL) and this vegetation could be expected there (if all examples have not succeeded to woody vegetation due to lack of fire).

Map Value: 270   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES202.354
SE-GAP Name: Eastern Highland Rim Prairie and Barrens
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Very Short Disturbance Interval, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system represents "The Barrens" of the Southeast Highland Rim of Tennessee. This is a distinctive part of the state and ecoregion (the "Dickson-Mountview-Guthrie" Soil Association of Elder and Springer 1978, Springer and Elder 1980). It includes a series of plant communities with open canopies, ranging from herbaceous-dominated barrens (some of which are maintained today by mowing instead of fire and grazing) through savanna and woodland types. Open ponds and other wetlands are scattered throughout the landscape. The variety of relatively open habitats which are present here include prairie-like areas, as well as savanna woodlands and upland depression ponds.

Map Value: 271   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES202.355
SE-GAP Name: Pennyroyal Karst Plain Prairie and Barrens
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous

Non-Diagnostic Classifiers:

Concept Summary: This system consists of open, prairie-like vegetation of the northern Highland Rim (Pennyroyal Plateau) of Tennessee and adjacent Kentucky (Ecoregion 71e [Western Pennyroyal Karst Plain] of Griffith et al. 1998; part of Subsection 222Eh of Keys et al. 1995). Stands are dominated by grasses and forbs with scattered shrubby vegetation and, occasionally, trees. The scattered trees are mainly Quercus falcata and Quercus imbricaria. The primary dominant grass is Schizachyrium scoparium, with some Sorghastrum nutans present. Other more mesic grasses (Andropogon gerardii, Tripsacum dactyloides) are restricted to ditches. This system occurs on the northwestern Highland Rim / Pennyroyal Karst Plain of Tennessee and Kentucky. The largest extant examples are presently found on Fort Campbell Military Reservation, where ecological burning and fires from live-fire munitions use result in open herbaceous-dominated landscapes. This vegetation was the predominant type here in the early 1800s, and probably originated from burning by Native Americans.

Map Value: 272   *NLCD Code: 31*   *NLCD Class: BARE ROCK/SAND*

SE-GAP Code: CES202.357
SE-GAP Name: Southern Interior Sinkhole Wall
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Cliff (Substrate), Alkaline Soil

Non-Diagnostic Classifiers:

Concept Summary: This system represents vertical shaft sinkholes and the characteristic vegetation associated with their steep walls in the southern Ridge and Valley and adjacent Interior Low Plateau regions of the southeastern United States. Related examples in the Southern Blue Ridge are also covered here. Examples are normally dominated by Cystopteris bulbifera and Asplenium rhizophyllum or the liverwort Dumortiera hirsuta.

Map Value: 273   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.359
SE-GAP Name: Allegheny-Cumberland Dry Oak Forest and Woodland
SE-GAP Description:

Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Acidic Soil, Broad-Leaved Tree

Non-Diagnostic Classifiers: Lowland, Forest and Woodland (Treed)

Concept Summary: This system encompasses dry hardwood forests on acidic substrates in the Allegheny and Cumberland plateaus, and ridges in the Ridge and Valley. This system can also be found as small isolated patches in the Southern Blue Ridge. Its range is more or less consistent with the "Mixed Mesophytic Forest Region" of Braun (1950) and Greller (1988), although it is not a mesic forest type. These forests can be dominated by Quercus alba, Quercus falcata, Quercus prinus, Quercus coccinea, Acer rubrum, Carya glabra, and Carya alba. These occur in a variety of situations, including on nutrient-poor or acidic soils. Sprouts of Castanea dentata can often be found where it was formerly a common tree.

Map Value: 274   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES202.453
SE-GAP Name: Southern Ridge and Valley Patch Prairie
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system is a collection of deep soil prairies and barrens found historically in the Coosa Valley of northwestern Georgia and adjacent Alabama and related areas including barrens at Oak Ridge, Tennessee. This system was formerly widespread, but is now found only in scattered and isolated remnants (DeSelm and Murdock 1993). Vegetation is typically prairie-like and may have supported scattered trees depending upon fire-return interval.

Map Value: 275   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.457
SE-GAP Name: Southern Ridge and Valley Dry Calcareous Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Circumneutral Soil, Broad-Leaved Tree

Non-Diagnostic Classifiers:

Concept Summary: This system includes dry to dry-mesic calcareous forests of the southern Ridge and Valley region of Alabama and Georgia. Examples occur on a variety of different landscape positions and occur on generally deeper soils than glade systems of the same regions. This system is distinguished from those further north in the Ridge and Valley because of its extreme southern location in the region, an area which is transitional to the "Oak-Pine-Hickory" region. High-quality and historic examples are typically dominated by combinations of Quercus species and Carya species, sometimes with Pinus species and/or Juniperus virginiana as a significant component in certain landscape positions and with particular successional histories. These forests occur in a variety of habitats and are the matrix vegetation type that covers most of the landscape under natural conditions. Examples can occur on a variety of topographic and landscape positions including ridgetops and upper and mid slopes. Fire frequency and intensity is a factor determining the relative mixture of deciduous hardwood versus evergreen trees in this system. Much of this system is currently composed of successional forests that have arisen after repeated cutting, clearing, and cultivation of the original forests. The range of this system is primarily composed of circumneutral substrates, and this exerts an expected influence on the composition of the vegetation.

Map Value: 276   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES202.552
SE-GAP Name: Southern Piedmont Northern Triassic Basin Dry Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed)

Non-Diagnostic Classifiers:

Concept Summary: This system occupies one of the largest Triassic basins in eastern North America. It includes an intricate intermingling of sub-acid and mafic forests on a broad flat landscape atypical of the Piedmont, outside the Triassic basin. Examples of this system include basic oak-hickory and acid oak-hickory forests. In contrast to upland forests of adjacent portions of the Piedmont, there is a pronounced difference in the abundance of hickory present (Farrell and Ware 1991, Ware 1992).

Map Value: 277   *NLCD Code: 52*   *NLCD Class: SHRUB/SCRUB*

SE-GAP Code: CES202.597a
SE-GAP Name: Central Appalachian Montane Rocky Bald - Shrub Modifier
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Shrubland (Shrub-dominated), Woody-Herbaceous, Moss/Lichen (Non-Vascular), Ridge/Summit/Upper Slope

Non-Diagnostic Classifiers: Temperate, Oligotrophic Soil, Very Shallow Soil, Ustic, Consolidated, F-Patch/Medium Intensity, Moderate (100-500 yrs) Persistence

Variation: Shrub - Moderate to high elevation shrub balds, including those dominated by rhododendrons.

Other Variation(s): Herbaceous.

Concept Summary: This non-forested montane system occurs in the central Appalachian Mountains, from central New England south to Virginia. It consists of herbaceous or shrubby vegetation at high elevations, including balds and high-elevation rock outcrops. The rocky outcrop areas may be vertical to horizontal, rugged or fractured rock outcrops of peaks, ridgetops, upper slopes, and other topographically exposed locations. These outcrops occur on felsic to mafic rocks and are distinguished by the prevalence of bare or lichen-encrusted rocks. Vegetation structure and dominance can vary from site to site and within site, from shrub-dominated to graminoid-dominated to a mix of low-growing lifeforms, especially lichens, mosses, and short-statured forbs. Picea rubens and Pinus resinosa are characteristic trees, occurring as scattered individuals. Heath shrubs are common, including Kalmia latifolia, Rhododendron spp., Vaccinium spp., and Gaylussacia baccata. Wind and ice are the major natural disturbance vectors. Some sites are edaphic, others fire-maintained, and others may be artifacts of land use, now intentionally maintained in an open condition.

Map Value: 278　　　*NLCD Code: 71*　　　*NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code:　　　CES202.597b
SE-GAP Name:　　　Central Appalachian Montane Rocky Bald - Herbaceous Modifier
SE-GAP Description:　Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Montane, Shrubland (Shrub-dominated), Woody-Herbaceous, Moss/Lichen (Non-Vascular), Ridge/Summit/Upper Slope

Non-Diagnostic Classifiers: Temperate, Oligotrophic Soil, Very Shallow Soil, Ustic, Consolidated, F-Patch/Medium Intensity, Moderate (100-500 yrs) Persistence

Variation: Herbaceous - High elevation grassy balds, generally maintained through active management such as fire, mowing, or grazing.

Other Variation(s): Shrub.

Concept Summary: This non-forested montane system occurs in the central Appalachian Mountains, from central New England south to Virginia. It consists of herbaceous or shrubby vegetation at high elevations, including balds and high-elevation rock outcrops. The rocky outcrop areas may be vertical to horizontal, rugged or fractured rock outcrops of peaks, ridgetops, upper slopes, and other topographically exposed locations. These outcrops occur on felsic to mafic rocks and are distinguished by the prevalence of bare or lichen-encrusted rocks. Vegetation structure and dominance can vary from site to site and within site, from shrub-dominated to graminoid-dominated to a mix of low-growing lifeforms, especially lichens, mosses, and short-statured forbs. Picea rubens and Pinus resinosa are characteristic trees, occurring as scattered individuals. Heath shrubs are common, including Kalmia latifolia, Rhododendron spp., Vaccinium spp., and Gaylussacia baccata. Wind and ice are the major natural disturbance vectors. Some sites are edaphic, others fire-maintained, and others may be artifacts of land use, now intentionally maintained in an open condition.

Map Value: 279　　　*NLCD Code: 43*　　　*NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code:　　　CES202.598
SE-GAP Name:　　　Appalachian Shale Barrens
SE-GAP Description:　Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Upland

Diagnostic Classifiers: Side Slope, Talus (Substrate), Unglaciated, Unconsolidated

Non-Diagnostic Classifiers: Lowland, Ridge/Summit/Upper Slope, Temperate, Acidic Soil, Very Shallow Soil, Ustic, Landslide

Concept Summary: This system encompasses the distinctive shale barrens of the central and southern Appalachians. These open to partially wooded barrens are found at low to mid elevations. The exposure and lack of soil create extreme conditions for plant growth. Vegetation is mostly classified as woodland but may include large open areas of sparse vegetation. The substrate includes areas of solid rock as well as unstable areas of shale scree, usually steeply sloped. The fully exposed areas are extremely dry. These barrens are high in endemic species.

Map Value: 280   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.602
SE-GAP Name: Central Appalachian Alkaline Glade and Woodland
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Ridge/Summit/Upper Slope, Unglaciated, Alkaline Soil, Shallow Soil

Non-Diagnostic Classifiers: Lowland, Forest and Woodland (Treed), Temperate, Mesotrophic Soil, Circumneutral Soil, Ustic, Intermediate Disturbance Interval, F-Patch/Medium Intensity

Concept Summary: This system occurs at low to moderate elevations from the Central Appalachians down into the Ridge and Valley. It consists of woodlands and open glades on thin soil over limestone, dolostone or similar calcareous rock. In some cases, the woodlands grade into closed-canopy forests. Juniperus virginiana is a common tree, and Quercus muehlenbergii is indicative of the limestone substrate. (In the northern periphery of the range, Thuja occidentalis may replace Juniperus virginiana.) Prairie grasses are the dominant herbs (Andropogon gerardii, Schizachyrium scoparium, Bouteloua spp.); forb richness is often high. Fire is an important natural disturbance vector.

Map Value: 281   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES202.605
SE-GAP Name: North-Central Interior and Appalachian Rich Swamp
SE-GAP Description:

Spatial Scale & Pattern: Small patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Woody Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree, Depressional, Mesotrophic Water, Saturated Soil, Temperate

Non-Diagnostic Classifiers: Extensive Wet Flat, Forest and Woodland (Treed), Intermittent Flooding, Partially Isolated Wetland, Lowland, Mineral: W/ A-Horizon >10 cm, Moderate (100-500 yrs) Persistence

Concept Summary: These forested wetlands are scattered throughout the north-central Midwest (south of the Laurentian region) and the north-central Appalachians at low to mid elevations. They are found in basins where higher pH and/or nutrient levels are associated with a rich flora. Tree species include Acer rubrum, Fraxinus nigra, as well as calciphilic herbs. Conifers include Larix laricina, but typically not Thuja occidentalis, which is characteristic of more northern wetland systems. There may be shrubby or herbaceous openings within the primarily wooded cover. The substrate is primarily mineral soil, but there may be some peat development.

Map Value: 282   *NLCD Code: 92*   *NLCD Class: PALUSTRINE SHRUB/SCRUB WETLAND*

SE-GAP Code: CES202.607
SE-GAP Name: North-Central Appalachian Seepage Fen
SE-GAP Description: Spatial Scale & Pattern: Small patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Herbaceous Wetland

Diagnostic Classifiers: Herbaceous, Organic Peat (>40 cm), Seepage-Fed Sloping

Non-Diagnostic Classifiers: 1-29-day hydroperiod, Circumneutral Water, Partially Isolated Wetland, Lowland, Short (50-100 yrs) Persistence, Shrubland (Shrub-dominated), Temperate

Concept Summary: This system is found in scattered locations in the Central Appalachians and eastern Great Lakes regions. Mostly non-forested, these open fens develop on shallow to deep peat over a sloping substrate, where seepage waters provide nutrients. Conditions are often circumneutral to alkaline. Sedges are the major dominants. Packera aurea, Symplocarpus foetidus, and Lobelia kalmii are among the characteristic forbs. Some of these areas are kept open by grazing, and succession to shrublands may occur in the absence of disturbance.

Map Value: 283   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES202.608b
SE-GAP Name: Central Appalachian Floodplain - Herbaceous Modifier
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Toeslope/Valley Bottom, Broad-Leaved Deciduous Tree, Riverine / Alluvial, Intermittent Flooding, Short (<5 yrs) Flooding Interval

Non-Diagnostic Classifiers: Lowland, Temperate, Eutrophic Soil, Deep Soil, Mineral: W/ A Horizon >10 cm, Silt Soil Texture, Udic, Ustic, Unconsolidated, Short Disturbance Interval, Flood Scouring, Moderate (100-500 yrs) Persistence, 1-29-day hydroperiod, 30-180-day hydroperiod

Variation: Herbaceous - Emergent and shrub wetland vegetation within the floodplain. Can include canebrake, sedge, and buttonbush dominated vegetation.

Other Variation(s): Forest.

Concept Summary: This system encompasses floodplains from southern New England to Virginia. Mostly forested, these occur on floodplains of medium to large rivers where topography and process have resulted in the development of a relatively flat floodplain with a complex of upland and wetland temperate alluvial vegetation. This complex includes floodplain forests in which Acer saccharinum, Populus deltoides, and Platanus occidentalis are characteristic, as well as herbaceous sloughs and shrub wetlands. Most areas are underwater each spring; microtopography determines how long the various habitats are inundated. Depositional and erosional features may both be present depending on the particular floodplain, although there is a history of deposition in the floodplain formation.

Map Value: 284   *NLCD Code:96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES202.609b
SE-GAP Name: Central Appalachian Riparian - Herbaceous Modifier
SE-GAP Description: Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland, Wetland

Diagnostic Classifiers: Lowland, Very Short Disturbance Interval, Flood Scouring, Riverine / Alluvial, Intermittent Flooding

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Side Slope, Toeslope/Valley Bottom, Temperate, Mesotrophic Soil, Udic, Ustic, Short (50-100 yrs) Persistence, Short (<5 yrs) Flooding Interval

Variation: Herbaceous - Herbaceous and shrub vegetation within the floodplain. Includes wetter sedge dominated areas, as well as grassy vegetation on dry sites.

Other Variation(s): Forest.

Concept Summary: This riparian system ranges from southern New England to Virginia. It develops on floodplains and shores along river channels that lack a broad flat floodplain due to steeper sideslopes, higher gradient, or both. Flooding is the major process affecting the vegetation, but compared to flat floodplain areas, the substrate is more rapidly drained, and deposition is less important than erosion. The vegetation is a mosaic of forest, woodlands, shrublands, and herbaceous communities. Common trees include Betula nigra, Platanus occidentalis, and Acer negundo. Panicum virgatum and Andropogon gerardii are typical of open, flood-scoured rivershore prairies, and Carex torta is typical of wetter areas near the channel.

Map Value: 285   *NLCD Code:43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code: CES202.691
SE-GAP Name: Central Interior Highlands Calcareous Glade and Barrens
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades, Alkaline Soil

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Sedimentary Rock, F-Patch/Medium Intensity

Concept Summary: This system is found primarily in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions along moderate to steep slopes and steep valleys on primarily southerly to westerly facing slopes. Limestone and/or dolomite bedrock typify this system with shallow, moderately to well-drained soils interspersed with rocks. These soils often dry out during the summer and autumn, and then become saturated during the winter and spring. Schizachyrium scoparium dominates this system and is commonly associated with Andropogon gerardii, Bouteloua curtipendula, and calcium-loving plant species. Stunted woodlands primarily dominated by Quercus muehlenbergii interspersed with Juniperus virginiana occur on variable-depth-to-bedrock soils. Fire is the primary natural dynamic, and prescribed fires help manage this system by restricting woody growth and maintaining the more open glade structure.

Map Value: 286   *NLCD Code: 43*   *NLCD Class: MIXED FOREST/WOODLAND*

SE-GAP Code:	CES202.692
SE-GAP Name:	Central Interior Highlands Dry Acidic Glade and Barrens
SE-GAP Description:	Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Woody-Herbaceous, Sedimentary Rock, Igneous Rock, Acidic Soil

Concept Summary: This system is found in the Interior Highlands of the Ozark, Ouachita, and Interior Low Plateau regions. It occurs along moderate to steep slopes or valley walls of rivers along most aspects. Parent material includes chert, igneous and/or sandstone bedrock with well- to excessively well-drained, shallow soils interspersed with rock and boulders. These soils are typically dry during the summer and autumn, becoming saturated during the spring and winter. Grasses such as Schizachyrium scoparium and Sorghastrum nutans dominate this system with stunted oak species (Quercus stellata, Quercus marilandica) and shrub species such as Vaccinium spp. occurring on variable depth soils. This system also includes dry Quercus stellata-dominated barrens on Cretaceous-aged gravel substrates on the northern fringes of the Upper East Gulf Coastal Plain Ecoregion in southern Illinois and western Kentucky. This system is influenced by drought and infrequent to occasional fires. Prescribed fires help manage this system by maintaining an open glade structure.

Map Value: 287   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code:	CES202.888
SE-GAP Name:	Bluegrass Basin Savanna and Woodland
SE-GAP Description:	Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous, Deep Soil, Very Short Disturbance Interval, Graminoid

Non-Diagnostic Classifiers:

Concept Summary: This system represents deep soil savannas and woodlands of the Inner Bluegrass Basin of Kentucky (Ecoregion 71l of USEPA 2001).

Map Value: 288   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.188
SE-GAP Name: Atlantic Coastal Plain Northern Mixed Oak-Heath Forest

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Tree, North Atlantic Coastal Plain

Non-Diagnostic Classifiers:

Concept Summary: This North Atlantic Coastal Plain system includes oak-dominated forests of submesic to xeric, infertile upland sites from the James River northward. Soils are strongly acidic, with low base cation levels and relatively high levels of iron (Fleming et al. 2001). Accumulations of thick duff and high biomass of inflammable shrubs in these forests make them susceptible to periodic fires, which in turn favors recruitment of oaks. In addition to oaks, Pinus taeda may also be a locally important component of the vegetation. Ericaceous (heath-family) plants, including Kalmia latifolia, Gaylussacia baccata, Vaccinium spp., and Gaylussacia frondosa, form dense colonies in the shrub and herb layers, and true herbaceous species are sparse.

Map Value: 289   *NLCD Code: 94*   *NLCD Class: ESTUARINE SHRUB/SCRUB WETLAND*

SE-GAP Code: CES203.214
SE-GAP Name: Atlantic Coastal Plain Northern Sea-Level Fen

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Seepage-Fed Sloping

Non-Diagnostic Classifiers: Shrubland (Shrub-dominated)

Concept Summary: This system includes maritime seepage wetlands confined to the northern portion of the Atlantic Coastal Plain from the Eastern Shore of Virginia (Accomack County) northward to New Jersey (Fleming et al. 2001). Habitats are situated just above highest tide levels, at the bases of slopes where abundant groundwater discharges along the upper edges of estuarine bays. The hydrology of these sites is best characterized as saturated, although shallow standing water and small, muck-filled pools are locally present at all sites. Soils are organic and nutrient-poor. The vegetation exhibits characteristics of both inland seepage bogs and oligohaline tidal marshes.

Map Value: 290   *NLCD Code:96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.247b
SE-GAP Name: Atlantic Coastal Plain Blackwater Stream Floodplain Forest - Herbaceous Modifier
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Blackwater]

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Variation: Herbaceous - Canopy forest absent leaving emergent herbaceous and shrub as the dominant vegetation, often the result of beaver activity.

Other Variation(s): Forest.

Concept Summary: This Atlantic Coastal Plain system, which is apparently most abundant in the Carolinas, occurs in floodplains of small streams that carry little mineral sediment (blackwater streams). These streams have their headwaters in sandy portions of the Coastal Plain. The water is usually strongly stained by tannins but has little suspended clay and is not turbid. Depositional landforms may be absent or present only in limited variety and of small size. Soils are usually strongly acidic. Flooding ranges from semipermanent in the wettest floodplains to intermittent and short in higher gradient streams. Some small blackwater streams have most of their flow from sandhill seepage and have limited fluctuation in water levels. Vegetation consists almost entirely of forests of wetland trees. Wetter examples are strongly dominated by Taxodium distichum and Nyssa biflora. Other examples have mixtures of these species with Quercus spp. and other bottomland hardwoods tolerant of blackwater conditions. Species richness ranges from low to moderate, but is lower than in comparable brownwater systems. Flooding is an important ecological factor in this system and may be the most important factor separating it from adjacent systems. Flooding brings nutrients and excludes non-flood-tolerant species. Unlike river systems, flooding tends to be variable and of shorter duration.

Map Value: 291　　　*NLCD Code: 96*　　　*NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code:　　　CES203.253
SE-GAP Name:　　　Atlantic Coastal Plain Sandhill Seep
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Non-vegetated (<10% vasc.), Wetland

Diagnostic Classifiers: Seepage-Fed Sloping

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This sandhill seep system occurs in small patches on slopes in dissected terrain, where a clay lens or other impermeable layer forces groundwater to the surface as seepage. This type occurs largely in the Fall-line Sandhills region of the Carolinas, but also rarely in other parts of the Atlantic Coastal Plain. Soils are seasonally to permanently saturated by seepage and range from sandy or clayey to mucky. Vegetation is variable and complex in composition and structure, consisting of a mixture of plants of pine savannas and streamhead pocosins, but contrasting with both in structure and proportions. The tree canopy may be open or absent, and patches of dense shrubs, dense grass, ferns, and various mixtures may be present. Fire is a crucial determinant of structure and composition; it tends to occur in a variable and patchy pattern that is driven by both the fire regime of the surrounding system and the wetness of the seep vegetation at the time.

Map Value: 292　　　*NLCD Code: 96*　　　*NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code:　　　CES203.275
SE-GAP Name:　　　Southern Coastal Plain Spring-run Stream Aquatic Vegetation
SE-GAP Description:

Spatial Scale & Pattern: Linear

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Riverine / Alluvial [Whitewater]

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: Spring-run streams are perennial water courses fed with artesian waters originating in karstic or limestone topography in the outer portions of the southeastern coastal plain of the United States. Such areas are rare in the Gulf and Atlantic coastal plains and apparently confined to Florida and small areas of Georgia. Waters are mineral-rich and circumneutral to alkaline with pH of 7.0-8.2 (FNAI 1990, Nordlie 1990). Water temperatures are relatively cool; clarity is often high. These factors contribute to sometimes lush growth of submerged aquatic vegetation which may include Vallisneria americana, Sagittaria kurziana, Potamogeton spp., and Myriophyllum spp. Emergent marshes dominated by Cladium and/or Zizania may occur along the edges. Floodplain development is not usually advanced, but many of these streams are bordered by forests in which Taxodium distichum is present.

Map Value: 293   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.353
SE-GAP Name: East Gulf Coastal Plain Jackson Plain Prairie and Barrens
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Herbaceous

Non-Diagnostic Classifiers:

Concept Summary: This ecological system was locally dominant in the Jackson Purchase area of western Kentucky, extending into limited areas of adjacent Tennessee. This central region, called the Barrens, has been historically subdivided from the rest of the Coastal Plain region of Kentucky (Davis 1923, Bryant and Martin 1988). A number of early reports mentioned extensive prairies in this region, and also emphasized the importance of annual fires in maintaining these grasslands [see references in Bryant and Martin (1988)]. Interspersed among the extensive grasslands were likely scattered groves of oaks, especially those tolerant of frequent fires (M. Evans pers. comm.). Among the most frequent trees historically present in the entire region were Quercus stellata, Quercus velutina, and Quercus marilandica (Bryant and Martin 1988). With fire suppression groves of trees rapidly expanded and largely replaced the prairies. In general, this system was found on gravelly uplands (Evans 1991) and possibly other xeric upland, shallow soil environments in the northern part of the Upper East Gulf ecoregion. High-quality examples would support a dense herbaceous layer dominated by tall grasses such as Schizachyrium scoparium, but the floristic composition of this type is poorly known since so few extant examples remain (M. Evans pers. comm.).

Map Value: 294   *NLCD Code: 92*   *NLCD Class: PALUSTRINE SHRUB/SCRUB WETLAND*

SE-GAP Code: CES203.385
SE-GAP Name: East Gulf Coastal Plain Interior Shrub Bog
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Shrubland (Shrub-dominated), Seepage-Fed Sloping

Non-Diagnostic Classifiers:

Concept Summary: This ecological system includes wet, shrub-dominated seepage communities in the Upper East Gulf Coastal Plain of Alabama, and possibly Mississippi. These wetlands generally occur in small patches on steep slopes within a matrix of longleaf pine-dominated vegetation. Wetland conditions are maintained by seepage flow from adjacent uplands. Examples of this system can vary between densely shrubby and fairly open and herbaceous, depending on frequency of fire and amount of elapsed time since the previous fires. However, this system tends to be much shrubbier due to topographic isolation than related seepage bog system of the Outer Coastal Plain. A globally rare pitcher plants (Sarracenia rubra ssp. alabamensis) may be present in some examples of this system.

Map Value: 295   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.475
SE-GAP Name: Northern Atlantic Coastal Plain Dry Hardwood Forest
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Concept Summary: This system is comprised of dry hardwood forests largely dominated by oaks, ranging from sandy glacial and outwash deposits of Cape Cod, Massachusetts, and Long Island, New York, south to the Coastal Plain portions of Maryland and Virginia south to about the James River. These forests occur on acidic, sandy to gravelly soils with a thick duff layer, often with an ericaceous shrub
layer.

Map Value: 296   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.478
SE-GAP Name: East Gulf Coastal Plain Black Belt Calcareous Prairie and Woodland
SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Graminoid

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes natural grassland vegetation and associated wooded vegetation in a relatively small natural region of Mississippi and Alabama north to a small part of southern Tennessee (Black Belt Subsection 231Ba of Keys et al. 1995; Blackland Prairie Ecoregion 65a of Griffith et al. 2001). It occurs over relatively deep soils (as opposed to "glades and barrens"), with circumneutral surface soil pH. However, like other Mississippi Embayment Prairie systems, this type occurs in a matrix of acid soils, and generally forested vegetation. In most cases individual prairie openings are small and isolated from one another, but were formerly more extensive prior to European settlement forming a mosaic of grassland and woodlands under frequent fire regimes. Much of the natural vegetation of the region has been converted to pasture and agricultural uses, but even old-field vegetation reflects the distinctive composition of the flora and ecological dynamics. The flora has much in common with other prairies of the Mississippi Embayment as well as the classic Midwestern prairies.

Map Value: 297   *NLCD Code: 41*   *NLCD Class: DECIDUOUS FOREST/WOODLAND*

SE-GAP Code: CES203.479b
SE-GAP Name: East Gulf Coastal Plain Jackson Plain Dry Flatwoods - Scrub/Shrub Understory Modifier
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Pimple mounds, Broad-Leaved Deciduous Tree

Non-Diagnostic Classifiers:

Variation: Scrub/Shrub - Areas with dense understory shrubs, usually due to fire surpression.

Other Variation(s): Open Understory.

Concept Summary: This system represents predominately dry flatwoods of limited areas of the most inland portions of the East Gulf Coastal Plain in western Kentucky. This broad region is referred to as the Jackson Purchase. These flatwoods have long been recognized as a distinctive subdivision within this region (Davis 1923, Bryant and Martin 1988). They tend to be confined to an area near the eastern flank of the region where loess deposits thin out and gravelly or sandy soils predominate. Examples are typified by ridge-and-swale topography. The ridges are somewhat coarser-textured soils and retain less moisture than do the swales, although both occur in a tight local mosaic. The soils appear to have well-developed subsurface hardpans. The impermeability of these hardpans contributes to shallowly perched water tables during portions of the year when precipitation is greatest and evapotranspiration is lowest (not due to overbank flooding). Thus, soil moisture fluctuates widely throughout the growing season, from saturated to very dry, a condition sometimes referred to as xerohydric (Evans 1991). Fire was an important natural process in this system, and well-burned examples tend to be relatively open-canopied with well-developed herbaceous layers (M. Evans pers. comm.).

Map Value: 298   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.490b
SE-GAP Name: Lower Mississippi River Bottomland Depressions - Herbaceous Modifier
SE-GAP Description: Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Needle-Leaved Tree, Broad-Leaved Deciduous Tree, Riverine / Alluvial [Brownwater]

Non-Diagnostic Classifiers:

Variation: Herbaceous - Emergent and shrub wetlands within forested wetland depressions (willows, pondweed, water-primrose).

Other Variation(s): Forested.

Concept Summary: This system represents semipermanently flooded to saturated depressional areas of the lower Mississippi River Alluvial Valley.

Map Value: 299   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.506c

SE-GAP Name: East Gulf Coastal Plain Interior Shortleaf Pine-Oak Forest - Pine Modifier

SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Short Disturbance Interval

Non-Diagnostic Classifiers:

Variation: Pine - Sites where shortleaf pine strongly dominates the canopy.

Other Variation(s): Hardwood, Mixed.

Concept Summary: This forested system of the East Gulf Coastal Plain occurs most extensively on generally rolling uplands north of the range of Pinus palustris. It was the historical matrix in large areas of the region in Alabama and Mississippi, particularly between about 32 degrees 30 minutes N latitude (the approximate local northern limit of the historic range of Pinus palustris), and about 35 degrees N latitude (the approximate limit where relatively extensive examples of Pinus echinata are replaced by predominantly hardwood-dominated systems. Stands occur on generally well-drained sandy or clayey soils and are dry to dry-mesic in moisture; both xeric and mesic areas are excluded. Pinus echinata is the dominant pine species of the generalized "dry and dry-mesic oak-pine" forest type in the Gulf Coastal Plain (White and Lloyd 1998) and is the most characteristic floristic component of this system. The actual amount of Pinus echinata present varies based on a number of factors, but intact examples of this system often include stands that are dominated by Pinus echinata grading into stands with a mixture of upland hardwoods. Locally, on mid to lower slopes, Pinus taeda may be a component, extending further upslope in the absence of fire. Fire is possibly the most important natural process affecting the floristic composition and vegetation structure of this system, although fire-return intervals are lower than those associated with the East Gulf Coastal Plain Interior Upland Longleaf Pine Woodland (CES203.496). Pinus echinata may have difficulty replacing itself in the absence of fire, particularly on sites other than the driest ones (Eyre 1980). Landers (1989) inferred a fire-return interval of 10 times per century for Pinus echinata. Local topographic conditions affecting natural fire compartment size generally lend themselves to this fire frequency, although some examples may have more frequent fires and some less than this generalized value. Where fire is most frequent the system may develop a relatively pure canopy of Pinus echinata typified by a very open woodland structure with scattered overstory trees and an herbaceous-dominated understory; such examples are rare on the modern landscape. More typical are areas in which Quercus spp., Carya spp., Liquidambar styraciflua, Liriodendron tulipifera, Acer spp., and Nyssa sylvatica have become prominent in the midstory and even overstory and in which herbaceous patches are rare. Although the general distributional boundaries described above, indicate where this system formed an historical landscape matrix, smaller patches of the system may also be present in limited areas both north and south of these boundaries. Although Lawson (1990) maps the native range of shortleaf throughout a relatively large area of western Tennessee, the actual distribution of the species appears to be much more confined and almost absent from the Coastal Plain (Chester 1990); when present, it occurs in only small stands on dry southwestern aspects (C. Nordman pers. comm.).

Map Value: 300   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.512
SE-GAP Name: Lower Mississippi River Bottomland and Floodplain Forest
SE-GAP Description: Spatial Scale & Pattern: Matrix

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree, Riverine / Alluvial

Non-Diagnostic Classifiers:

Concept Summary: This system includes the floodplain communities of the lower Mississippi River (from southern Illinois to the Gulf of Mexico) and its larger tributaries. The larger tributaries included in this system are particularly well-developed west of the Mississippi. These tributaries include the eastern portions of the Arkansas River, the lower Ouachita River, the St. Francis River, and the Red River. Collectively, this system represents the largest single example of Southern Floodplain Forest (Kuchler 1964). The north-south extent of this ecosystem is approximately 750 km. As described here, this system includes substantial hydrological and floristic variation. Changes of a few centimeters in elevation may produce great variation in hydrologic conditions, soils, and vegetation (Sharitz and Mitsch 1993). The hydroperiod and its timing ultimately determine the species composition and influences structure and function. Component stands may be temporarily or seasonally flooded, and typically exhibit dominance by Quercus spp., e.g., Quercus texana, Quercus shumardii, Quercus michauxii, Quercus nigra, Quercus phellos, Quercus laurifolia, Quercus lyrata, as well as Nyssa biflora. It is typically thought of as being composed of hardwoods, but some stands may exhibit local codominance by Pinus taeda, particularly following disturbance. There are also stands dominated by various combinations of Acer spp., Celtis spp., Ulmus spp., and/or Platanus occidentalis. Certain early-succession stands may be dominated by Salix nigra, or mixtures of this species and Populus deltoides. Levee and riverfront forests, which have a distinctive composition (typically Betula nigra, Platanus occidentalis, Populus deltoides) but are related by proximity and common processes, are included here. Deeper water areas (e.g., semipermanently flooded depression swamps), which are recognized as a distinct ecological system (Lower Mississippi River Bottomland Depressions (CES203.490)), usually support stands of Nyssa aquatica, Taxodium distichum, and a few other taxa which favor longer hydroperiods. The environment for this system potentially occurs wherever the Mississippi River and the specified larger tributaries flood at least occasionally beyond their banks (Sharitz and Mitsch 1993). Processes are typically erosional rather than depositional in this system. These may range up to several kilometers wide. This system is thought to have occupied the majority of the inland wetland acreage in the described range at the time of European settlement (Sharitz and Mitsch 1993). Extensive areas have been converted to agricultural uses, particularly the more elevated terraces, which would flood less frequently. The construction of artificial levees and other flood control devices throughout the range of the type has severely altered the dynamics of much of the remaining acreage. Estimates of the remaining area of floodplain ecosystems in the southeastern states (this area extending beyond the range of this Mississippi River ecosystem type) range from about 6.6 million hectares to about twice this amount.

Map Value: 301   *NLCD Code: 42*   *NLCD Class: EVERGREEN FOREST/WOODLAND*

SE-GAP Code: CES203.513

SE-GAP Name: Mississippi Delta Maritime Forest

SE-GAP Description:
Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Forest and Woodland (Treed), Coast

Non-Diagnostic Classifiers:

Concept Summary: This system includes forests on barrier islands and spits formed during the deltaic shifts of the Mississippi River. It also includes the woody vegetation of salt domes in the Mississippi River deltaic plain. Since natural deltaic processes have been altered, barrier island are no longer being formed in the Mississippi Delta region and existing barrier islands are undergoing subsidence and beach erosion. This system currently includes one forested beach ridge located at Grande Isle in Louisiana.

Map Value: 302   *NLCD Code: 96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.518
SE-GAP Name: Atlantic Coastal Plain Northern Pondshore
SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system includes vegetation of groundwater-flooded depressions characterized by a flora generally restricted to the Coastal Plain from the southern portion of the Delmarva peninsula to Cape Cod, Massachusetts. Ponds may contain permanent water, such as the deep glacial kettleholes of Cape Cod and Long Island, New York, or may be shallow basins where groundwater drops below the surface late in the growing season. This system occurs on sandy deposits such as outwash plains of the glaciated region (Long Island and Cape Cod), on the deep sands of the New Jersey Pine Barrens, or on finer sediments of the Coastal Plain of Cape May, New Jersey, the Delmarva peninsula, and the Chesapeake Bay region. The vegetation of steeper-sided basins (generally those containing permanent water) are characterized by strong zonation, with a border of tall shrubs such as Vaccinium corymbosum, and several essentially concentric bands or zones dominated by different associations, depending on geography. Characteristic species in Massachusetts and Long Island include Rhexia virginica, Cyperus dentatus, Gratiola aurea, Panicum verrucosum, Euthamia tenuifolia, Carex striata, Juncus pelocarpus, Rhynchospora capillacea, Rhynchospora macrostachya, Xyris difformis, Fimbristylis autumnalis, Scleria reticularis, Sabatia kennedyana, Drosera filiformis, Juncus militaris, and many others.

Ponds of the New Jersey Pine Barrens share many of these species, with others including Juncus repens, Muhlenbergia torreyi, Rhynchospora oligantha, Rhynchospora cephalantha, Rhynchospora chalarocephala, and many others. In shallow basins, such strong zonation is generally lacking but still remains evident in some cases. On Cape Cod, Long Island, and New Jersey, this system most often occurs within the pitch pine barrens.

From Cape May and south, the system occurs within an upland matrix of mixed hardwood forests and generally supports a seasonally flooded swamp forest characterized by Liquidambar styraciflua, Acer rubrum, wetland oaks such as Quercus phellos, and in Virginia and scattered locations on the Inner Coastal Plain of Maryland, Nyssa biflora. The vegetation is characterized by many of the species from New England, New York and New Jersey, and also includes Juncus repens, Boltonia asteroides, Fimbristylis perpusilla, Coelorachis rugosa, Dichanthelium spretum, Saccharum giganteum, Eleocharis quadrangulata, and others. Cephalanthus occidentalis often occurs as scattered individuals or as a shrub swamp with less diversity and cover of Coastal Plain flora.

Map Value: 303   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.522
SE-GAP Name: Atlantic Coastal Plain Northern Basin Peat Swamp
SE-GAP Description:

Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Forest and Woodland (Treed)

Concept Summary: This system is comprised of acidic peat swamps (Atlantic white-cedar swamps, pitch pine bogs, and hardwood swamps characterized by Acer rubrum and Nyssa sylvatica) occurring on the northern portion of the Atlantic Coastal Plain from Massachusetts south to Virginia. The hydrology is saturated, as evidenced by Sphagnum-dominated hummock-and-hollow microtopography.

Map Value: 304   *NLCD Code: 71*   *NLCD Class: GRASSLAND/HERBACEOUS*

SE-GAP Code: CES203.534
SE-GAP Name: Panhandle Florida Limestone Glade
SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Upland

Diagnostic Classifiers: Woody-Herbaceous, Rock Outcrops/Barrens/Glades

Non-Diagnostic Classifiers:

Concept Summary: This small-patch limestone glade system is endemic to the Panhandle of Florida (primarily Jackson County). It includes a range of limestone outcrops on hillsides and hill crests where soils are either non-existent or only shallowly present (FNAI 1990).

Map Value: 305   *NLCD Code:91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES203.554

SE-GAP Name: East Gulf Coastal Plain Northern Seepage Swamp

SE-GAP Description:

Spatial Scale & Pattern: Large Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Seepage-Fed Sloping

Non-Diagnostic Classifiers: Forest and Woodland (Treed), Broad-Leaved Deciduous Tree

Concept Summary: This wetland system of the East Gulf Coastal Plain consists of forested wetlands in acidic, seepage-influenced habitats. These are mostly deciduous forests (and less commonly herbaceous communities) generally found at the base of slopes or other habitats where seepage flow is concentrated. Resulting moisture conditions are saturated or even inundated. The vegetation is characterized by Nyssa sylvatica, Nyssa biflora, and Acer rubrum. Examples occur in portions of the Coastal Plain north of the range of Persea borbonia, Magnolia grandiflora, and the limit where Magnolia virginiana is an important or even dominant species. To the south this system grades into the East Gulf Coastal Plain Southern Seepage Swamp (CES203.505) where evergreen species are important in the canopy and understory. Due to excessive wetness, these habitats are normally protected from fire except those which occur during extreme droughty periods. These environments are prone to long-duration standing water, and tend to occur on highly acidic, nutrient-poor soils.

Map Value: 306   *NLCD Code:96*   *NLCD Class: PALUSTRINE EMERGENT WETLAND*

SE-GAP Code: CES203.558

SE-GAP Name: East Gulf Coastal Plain Northern Depression Pondshore

SE-GAP Description:

Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers:

Non-Diagnostic Classifiers: Herbaceous

Concept Summary: This system consists of a variety of upland depression pondshores of the northern East Gulf Coastal Plain. Included here are shallow ponds of various geomorphic origin in a variety of substrates (e.g., limesinks, Grady Ponds) which are not separately distinguished as systems. These are generally in isolated upland situations, and are not part of a stream system, although they may serve as the origin of a stream system in a general way, releasing water gradually into the stream drainage system during periods of wet weather. In some examples, a distinct zonation of vegetation is present, in others the zones are not distinct or the differing associations are present in a complex mosaic. Most seasonal depression ponds are usually composed of mosaics of several plant associations. The vegetation includes various zones which become exposed as water levels decline, as well as emergent (rising out of the water) or submergent/floating plants. Some typical associations include ones dominated by species such as Dichanthelium wrightianum, Dichanthelium erectifolium, Eleocharis equisetoides, Eleocharis microcarpa, Juncus effusus, Juncus repens, Rhynchospora corniculata, Rhynchospora inundata, Panicum hemitomon, Proserpinaca spp., Pluchea spp., Ludwigia spp., Saccharum spp., Panicum verrucosum, Rhexia spp., and Sabatia angularis. In addition, associations dominated by Polygonum spp., Leersia spp., and Typha spp. may be present but are not characteristic.

Map Value: 307   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES411.484

SE-GAP Name: South Florida Willow Head

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Depressional [Peaty]

Non-Diagnostic Classifiers:

Concept Summary: This system of south Florida consists of forested freshwater wetlands dominated by nearly monospecific stands of Salix caroliniana (Davis 1943, Loveless 1959, Craighead 1971). Examples form around often circular or oval-shaped solution holes, basins, and sometimes occur in linear strands or sloughs (Craighead 1971). These wetlands hold water for much of the year and are favored habitats for American Alligators. Alligators help to maintain the actual depressions in which this system occurs, which would otherwise fill with organic material and succeed to other systems. Soils are mucky peats. Salix caroliniana seeds are readily dispersed by wind and may rapidly colonize wet depressions and disturbed areas.

Map Value: 308   *NLCD Code: 91*   *NLCD Class: PALUSTRINE FORESTED WETLAND*

SE-GAP Code: CES411.486

SE-GAP Name: South Florida Pond-Apple/Popash Slough

SE-GAP Description: Spatial Scale & Pattern: Small Patch

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Depressional [Peaty], >180-day hydroperiod

Non-Diagnostic Classifiers:

Concept Summary: This wetland system of south Florida occupies deep muck soils with long hydroperiods. Examples are dominated by Fraxinus caroliniana and/or Annona glabra. Aquatic herbs species that are also found in other wetland systems of south Florida, such as Crinum americanum, Bacopa caroliniana, and Sagittaria graminea, may also be present (Gunderson and Loope 1982, Hilsenbeck et al. 1979). Examples of this system are important nesting, feeding, and roosting habitats for Everglades wading birds (Hilsenbeck et al. 1979). Large areas of this system that formerly occurred around Lake Okeechobee were cleared for farming around 1900 (Craighead 1971); only small examples still persist in Big Cypress National Preserve and portions of the Everglades National Park.

Map Value: 309   *NLCD Code:97*   *NLCD Class: ESTUARINE EMERGENT WETLAND*

SE-GAP Code: CES411.540a
SE-GAP Name: Southwest Florida Perched Barriers Salt Swamp and Lagoon - Marsh Modifier
SE-GAP Description: Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Tidal / Estuarine [Haline]

Non-Diagnostic Classifiers:

Variation: Marsh - Areas of herbaceous marsh on the edges of this system.

Other Variation(s): Mangrove.

Concept Summary: This system includes tidal wetlands along the western coast of Florida from approximately Tampa Bay south to Charlotte Harbor. In this region, tidal marshes (common to the north) are largely replaced by mangrove forests with canopies of up to 10 meters in height (Montague and Wiegert 1990). Odum and McIvor (1990) show a diagram displaying the community zonation present in this system at Tampa Bay. A narrow high marsh zone of Batis and Juncus grades into low swamps with Laguncularia racemosa, Avicennia germinans, and Rhizophora mangle. Lewis et al. (1979) estimated that 44% loss of intertidal vegetation in the Tampa Bay region.

Map Value: 310   *NLCD Code:93*   *NLCD Class: ESTUARINE FORESTED WETLAND*

SE-GAP Code: CES411.540b
SE-GAP Name: Southwest Florida Perched Barriers Salt Swamp and Lagoon - Mangrove Modifier
SE-GAP Description: Spatial Scale & Pattern: Unknown

Required Classifiers: Natural/Semi-natural, Vegetated (>10% vasc.), Wetland

Diagnostic Classifiers: Forest and Woodland (Treed), Tidal / Estuarine [Haline]

Non-Diagnostic Classifiers:

Variation: Mangrove - Forested areas of this system where mangroves dominate.

Other Variation(s): Marsh.

Concept Summary: This system includes tidal wetlands along the western coast of Florida from approximately Tampa Bay south to Charlotte Harbor. In this region, tidal marshes (common to the north) are largely replaced by mangrove forests with canopies of up to 10 meters in height (Montague and Wiegert 1990). Odum and McIvor (1990) show a diagram displaying the community zonation present in this system at Tampa Bay. A narrow high marsh zone of Batis and Juncus grades into low swamps with Laguncularia racemosa, Avicennia germinans, and Rhizophora mangle. Lewis et al. (1979) estimated that 44% loss of intertidal vegetation in the Tampa Bay region.