

Ecological site PX133A00X001

Peatland Pocosin

Accessed: 04/23/2024

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

MLRA notes

Major Land Resource Area (MLRA): 133A–Southern Coastal Plain

This MLRA (shown in orange in the figure above) is in Alabama (26 percent), Mississippi (24 percent), Georgia (21 percent), Florida (8 percent), North Carolina (7 percent), Virginia (5 percent), South Carolina (4 percent), Tennessee (4 percent), and Louisiana (1 percent). It makes up about 106,485 square miles (275,930 square kilometers). It is the largest MLRA in the U.S. The city of Alexandria, Virginia, is at the northernmost tip of the area. The MLRA also includes Fredericksburg, Richmond, and Petersburg, Virginia; Rocky Mount, Goldsboro, Fayetteville, and Lumberton, North Carolina; Florence, Sumter, and Orangeburg, South Carolina; Albany and Tifton, Georgia; Tallahassee, Florida; Tuskegee, Eufaula, Selma, and Tuscaloosa, Alabama; Savannah, Tennessee; Corinth, Starkville, Grenada, Meridian, Hattiesburg, and McComb, Mississippi; and Bogalusa, Louisiana. Interstates 95, 64, 85, 40, 20, 20/59, 26, 16, 75, 10, 65, 59, and 55 cross this area from north to south. This area extends from Virginia to Louisiana and Mississippi, but it is almost entirely within three sections of the Coastal Plain Province of the Atlantic Plain. The northern part is in the Embayed Section, the middle part is in the Sea Island Section, and the southern part is in the East Gulf Coastal Plain Section. This MLRA is strongly dissected into nearly level and gently undulating valleys and gently sloping to steep uplands. Stream valleys generally are narrow in their upper reaches but become broad and have widely meandering stream channels as they approach the coast. Elevation ranges from 80 to 655 feet (25 to 200 meters), increasing gradually from the lower Coastal Plain northward. Local relief is mainly 10 to 20 feet (3 to 6 meters), but it is 80 to 165 feet (25 to 50 meters) in some of the more deeply dissected areas.

Classification relationships

ATTENTION: This ecological site meets the requirements for PROVISIONAL. A provisional ecological site is established after ecological site concepts are developed and an initial state-and-transition model is drafted. A provisional ecological site typically will include literature reviews, land use history information, legacy data, and must include some soils data, ocular estimates for canopy and/or species composition by weight, and some line-point intercept information. A provisional ecological site provides the conceptual framework of soil-site correlation for the development of the ESD. For more information about this ecological site, please contact your local NRCS office.

Ecological site concept

This system occurs on broad interfluvial flats and in small to large, very gentle basins and swales, largely on the outermost terraces of the Outer Coastal Plain. Some occurrences are in large to small peat-filled Carolina bays. Smaller patches occur in shallow swales associated with relict coastal dune system or other irregular sandy surfaces. Soils range from wet mineral soils with mucky surface layers to peats several meters deep. Most of the largest occurrences are domed peatlands with the deepest peat associated with topographic highs in the center, but deep peats are also associated with buried drainage channels. Hydrology is driven by rainfall and sheet flow. Soils are normally saturated throughout the winter and well into the growing season, though the organic material may dry enough to burn during droughts. Standing water is limited to local depressions and disturbed areas. Soil saturation and peat depth, with its corresponding nutrient limitation, are the primary drivers of vegetational zonation as well as the distinction between this system and adjacent ones, but their effect may be modified by drainage patterns.

Table 1. Dominant plant species

| | |
|------------|---|
| Tree | (1) <i>Pinus serotina</i> (2) <i>Pinus palustris</i> |
| Shrub | (1) <i>Cyrilla racemiflora</i> (2) <i>Myrica cerifera</i> |
| Herbaceous | (1) <i>Arundinaria gigantea</i> (2) <i>Smilax laurifolia</i> |

Legacy ID

F133AY001NC

Physiographic features

This area extends from Virginia to Louisiana and Mississippi, but it is almost entirely within three sections of the Coastal Plain Province of the Atlantic Plain. The northern part is in the Embayed Section, the middle part is in the Sea Island Section, and the southern part is in the East Gulf Coastal Plain Section. This MLRA is strongly dissected into nearly level and gently undulating valleys and gently sloping to steep uplands. Stream valleys generally are narrow in their upper reaches but become broad and have widely meandering stream channels as they approach the coast. Elevation ranges from 80 to 655 feet (25 to 200 meters), increasing gradually from the lower Coastal Plain northward. Local relief is mainly 10 to 20 feet (3 to 6 meters), but it is 80 to 165 feet (25 to 50 meters) in some of the more deeply dissected areas.

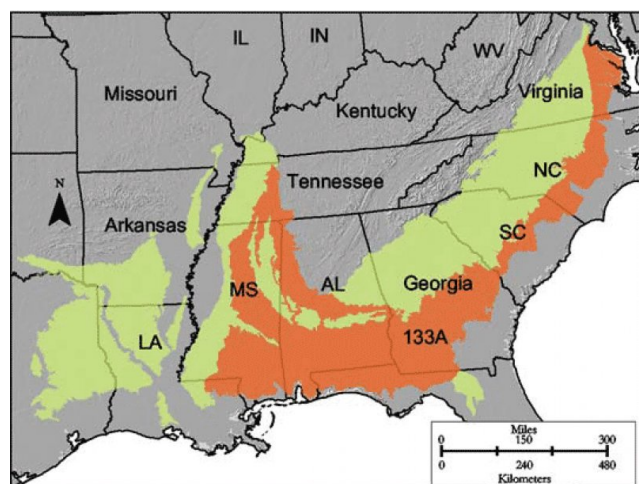


Figure 1. southern coastal plain

Table 2. Representative physiographic features

| | |
|--------------------|------------------------------------|
| Landforms | (1) Depression (2) Carolina Bay |
| Flooding frequency | Frequent to rare |
| Ponding frequency | Frequent to rare |
| Slope | 0–2% |
| Water table depth | 0–30 in |
| Aspect | Aspect is not a significant factor |

Climatic features

The average annual precipitation in this area ranges from 41 to 53 inches (1,041 to 1,346 millimeters). Maximum precipitation occurs in midsummer, and the minimum occurs in autumn. High-intensity, convective thunderstorms account for summer rainfall. If snow occurs at all, it is in small amounts.

The average annual temperature ranges from 59 to 65 degrees F (15 to 18 degrees C).

Climate data is based on Normal PRISM data for the period 1981-2010.

Table 3. Representative climatic features

| | |
|-------------------------------|----------|
| Frost-free period (average) | 205 days |
| Freeze-free period (average) | 232 days |
| Precipitation total (average) | 50 in |

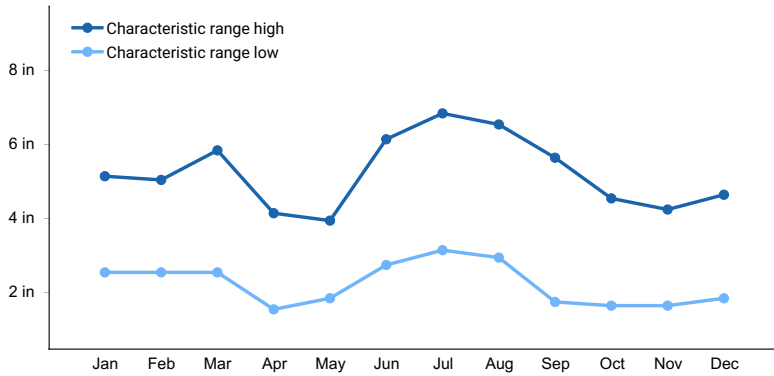


Figure 2. Monthly precipitation range

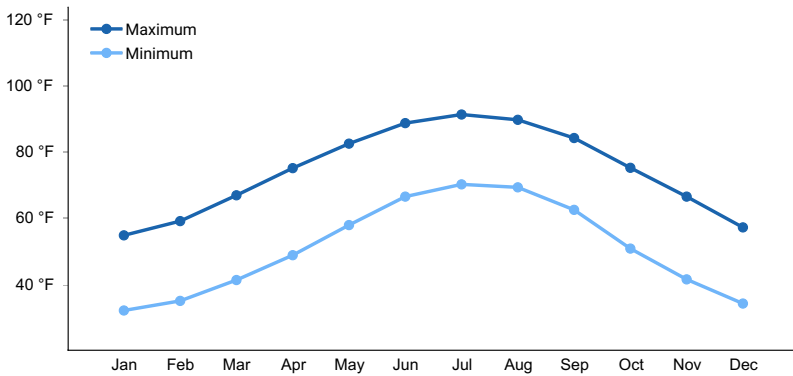


Figure 3. Monthly average minimum and maximum temperature

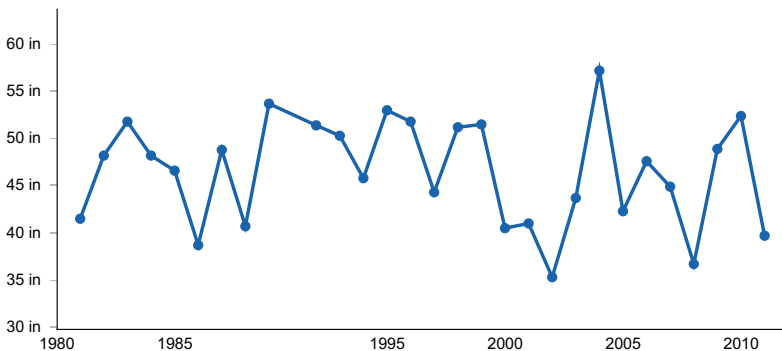


Figure 4. Annual precipitation pattern

Climate stations used

- (1) CHERAW [USC00381588], Cheraw, SC
- (2) PELION 4 NW [USC00386775], Pelion, SC
- (3) BYRON EXP STN [USC00091448], Byron, GA
- (4) HAMLET [USC00313784], Hamlet, NC

- (5) MACON MIDDLE GA RGNL AP [USW00003813], Macon, GA
- (6) POPE AFB [USW00013714], Fort Bragg, NC
- (7) AIKEN 5SE [USC00380074], Aiken, SC
- (8) CAMDEN 3 W [USC00381310], Camden, SC
- (9) SANDHILL RSCH ELGIN [USC00387666], Elgin, SC
- (10) JACKSON SPRINGS 5 WNW [USC00314464], Jackson Springs, NC
- (11) AUGUSTA BUSH FLD AP [USW00003820], Augusta, GA
- (12) COLUMBIA [USW00013883], West Columbia, SC

Influencing water features

Soil features

Landscape: Lower to upper coastal plain

Landform: Flats, Carolina bays, and depressions

Geomorphic Component: Talfs, dips

Parent Material: Marine deposits or fluviomarine sediments

Elevation: 25 to 450 feet

Mean Annual Air Temperature: 57 to 70 degrees

Mean Annual Precipitation: 38 to 52 inches

Frost Free Period: 190 to 245 days Major Uses: Forest, some pasture and cropland

Dominant Vegetation: Where cultivated--corn, soybeans, and truck crops. Where wooded--loblolly and longleaf pine, sweetgum, blackgum, water oak, willow oak, water tupelo, elm, and hickory.

Distribution: Coastal Plain of North Carolina, Georgia, Florida, Alabama, Mississippi, and possibly Virginia and Louisiana

Extent: Large

Coxville, McColl, Paxville, Rains, Rutlege, Toisnot, Torhunta

Table 4. Representative soil features

| | |
|--|--|
| Surface texture | (1) Loam (2) Sandy loam (3) Clay loam |
| Drainage class | Somewhat poorly drained to very poorly drained |
| Permeability class | Moderately slow to very slow |
| Soil depth | 80 in |
| Surface fragment cover <=3" | 0–2% |
| Surface fragment cover >3" | 0% |
| Available water capacity (0-40in) | 3–7 in |
| Calcium carbonate equivalent (0-40in) | 0% |
| Electrical conductivity (0-40in) | 0 mmhos/cm |
| Sodium adsorption ratio (0-40in) | 0 |
| Soil reaction (1:1 water) (0-40in) | 3.5–6.5 |
| Subsurface fragment volume <=3" (Depth not specified) | 0–2% |

| | |
|---|------|
| Subsurface fragment volume >3" (Depth not specified) | 0–1% |
|---|------|

Ecological dynamics

Fire is an important factor in these systems, with the pre-settlement fire regime probably being very different from that observed under current conditions. Natural fire-return intervals are not well known, but are probably on the order of a decade or two in the wettest areas. Peripheral areas may be subject to fire as often as the surrounding vegetation burns, which may naturally have been an average of 3 years. Fires are typically intense due to density and flammability of the vegetation, killing all above-ground vegetation. They are followed by vigorous root sprouting by shrubs and hardwoods, leading to recovery of standing biomass within a few years. *Pinus serotina* recovers by epicormic sprouting or by regeneration from seeds released from serotinous cones. Fires during droughts may ignite peat, forming holes that take longer to recover. Herb-dominated openings in pocosins may depend on peat fires, though this is not well documented. Natural fires occur in large patches, creating a shifting patch structure in the system that interacts with the vegetational zonation created by peat depth. The intensity of fire in these systems makes fire control difficult; prescribed burning is seldom done, and wild fires continue to be a significant influence. The larger peatlands are believed to have been created by paludification following natural blocking of drainage (Otte 1981). Peat buildup raises the water table in the center, creating the domed structure of the largest peatlands and allowing the wetland to spread out as wetness is increased at the edges. Most deeper pocosin peats contain fossil logs that indicate dominance by a swamp forest in past millennia. Otte (1981) noted that peat fires likely limit the height to which the peat can accumulate, in proportion to how high it can raise the local water table. Descriptions of Ecological Systems for Modeling of LANDFIRE Biophysical Settings Ecological Systems of location MRLC Map Zones 45, 46, 47, 48, 53, 54, 55, 56, 57, 58, 59, 60 OR 61; Including Aggregates 06 October 2007 Descriptions provided to TNC and LANDFIRE by NatureServe

State and transition model

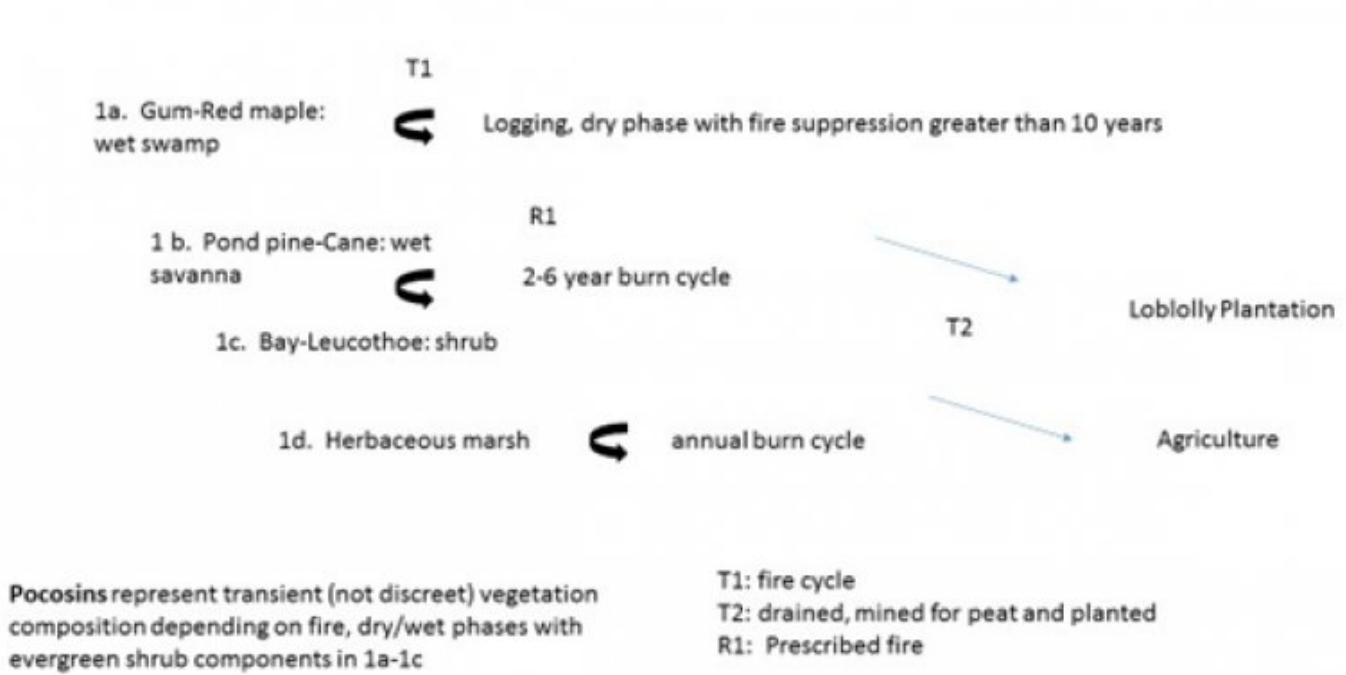


Figure 6. image

**State 1
Reference**

Wetland depressions and Carolina Bays typically are meadowlike wetlands that occur in shallow depressions that are seasonally flooded. The site is characterized by a species-rich herbaceous understory of grasses and sedges. The site can also support trees such as pond-cypress (*Taxodium ascendens*), black gum (*Nyssa sylvatica*), and/or pond pine (*Pinus serotina*).

**State 2
Streamhead Pocosin**

Streamhead Pocosin includes forests and woodlands with an evergreen shrub stratum and canopy dominated by Pond Pine (*Pinus serotina*). Other similar forested wetlands may be dominated by Atlantic White Cedar (*Chamaecyparis thyoides*), and/or hardwoods such as Sweet Bay (*Magnolia virginiana*), Swamp Black Gum (*Nyssa biflora*), and Tuliptree (*Liriodendron tulipifera*). These are treated in the Sandhill Streamhead Pocosin and Swamp Environmental Site Description document. Sandhill Seep is usually just upslope from the Sandhill Streamhead Pocosin and Swamp, and the environmental site is only slightly different, The ecological dynamics of the Streamhead Pocosin is influenced by the amount and duration of saturation or flooding and the frequency and intensity of wildland fire. These areas are generally upstream from well developed floodplains, and are more influenced by seepage fed saturation, than by flooding for stream channel overflow. These seepage habitats support many evergreen shrubs which can burn in medium to high intensity wildland fires. The leaves of these shrubs contain volatile oils which provide substantial fuel to fires which may approach this riparian habitat from adjacent uplands at medium intensity. The varied frequency and intensity of wildland fire contributes to a mosaic of different vegetation with in this ecological site.

**State 3
Successional Forest**

**Transition 1
State 2 to 1**

Frequent Fire is wildland fire which is occurring more than once in a decade. Wildland fire includes planned

prescribed fires, and fires which are not planned, such as arson fires, accidental fires or fires started by lightning. Unplanned fires can be more intense than planned prescribed fires. Prescribed fire (Rx fire) is defined as fire applied in a knowledgeable manner to forest fuels on a specific land area under selected weather conditions to accomplish predetermined, well-defined management objectives.

Transition 3 State 2 to 3

Lack of Fire is a period of 40 years or more without wildland fire. Wildland fire includes planned prescribed fires, and fires which are not planned, such as arson fires, accidental fires or fires started by lightning. Unplanned fires can be more intense than planned prescribed fires. Prescribed fire (Rx fire) is defined as fire applied in a knowledgeable manner to forest fuels on a specific land area under selected weather conditions to accomplish predetermined, well-defined management objectives.

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

| | |
|---|-------------------|
| Author(s)/participant(s) | |
| Contact for lead author | |
| Date | |
| Approved by | |
| Approval date | |
| Composition (Indicators 10 and 12) based on | Annual Production |

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

Dominant:

Sub-dominant:

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

17. **Perennial plant reproductive capability:**
