

Ecological site F133AY003NC

Small Brownwater River Floodplain

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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 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. Occurs in floodplains of medium to small Coastal Plain rivers that carry significant mineral sediment (brownwater or redwater rivers). These rivers have their headwaters in the Piedmont, Blue Ridge, Interior Plateaus, or in portions of the Coastal Plain where fine-textured sediment predominates. The water generally carries substantial amounts of silt, clay, and sometimes sand. Depositional landforms such as point bars, natural levees, backswamps, and ridge-and-swale systems (scrollwork) are well-developed and form patterns of significant variation in flooding duration and nutrient input. Soil texture varies from sandy to clayey. Soils are generally fertile and not strongly acidic. Flooding ranges from semipermanent in the wettest areas to intermittent and short on the higher portions of the floodplain. The highest terraces may no longer flood at all and belong to a different system. Descriptions of Ecological Systems for Modeling of LANDFIRE Biophysical Settings Ecological Systems 06 October 2007 Descriptions provided to TNC and LANDFIRE by NatureServe

Table 1. Dominant plant species

Tree	(1) <i>Taxodium distichum</i> (2) <i>Nyssa aquatica</i>
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Shrub	(1) <i>Betula nigra</i> (2) <i>Platanus occidentalis</i>
Herbaceous	(1) <i>Boehmeria cylindrica</i>

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.

Table 2. Representative physiographic features

Landforms	(1) Hill
Flooding frequency	None
Ponding frequency	None
Elevation	50 – 200 m
Slope	0 – 20 %
Water table depth	0 – 80 cm
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)	210 days
Freeze-free period (average)	230 days

Precipitation total (average)	1,270 mm
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- (1) MACON MIDDLE GA RGNL AP [USW00003813], Macon, GA
- (2) POPE AFB [USW00013714], Fort Bragg, NC
- (3) CHERAW [USC00381588], Cheraw, SC
- (4) HAMLET [USC00313784], Hamlet, NC
- (5) JACKSON SPRINGS 5 WNW [USC00314464], Jackson Springs, NC
- (6) PELION 4 NW [USC00386775], Pelion, SC
- (7) BYRON EXP STN [USC00091448], Byron, GA
- (8) AIKEN 5SE [USC00380074], Aiken, SC
- (9) CAMDEN 3 W [USC00381310], Camden, SC
- (10) SANDHILL RSCH ELGIN [USC00387666], Elgin, SC
- (11) AUGUSTA BUSH FLD AP [USW00003820], Augusta, GA
- (12) COLUMBIA [USW00013883], West Columbia, SC

Influencing water features

The Susquehanna soil series is somewhat poorly drained and exhibits a seasonal high water table during the winter months of most years between the depths of 6 and 24 inches.

Soil features

Landscape: Coastal Plain river valley
Landform: Flood plains
Geomorphic Component: Treads
Parent Material: Alluvium
Elevation (type location): 10 to 90 feet
Mean Annual Air Temperature: 59 to 70 degrees
Mean Annual Precipitation: 38 to 52 inches
Frost Free Period: 190 to 245 days

GEOGRAPHICALLY ASSOCIATED SOILS:

Bibb soils--have less than 35 percent clay
Byars soils--have argillic horizons and are on higher areas
Capers soils--saturated with salt water and contain more than 1 percent sulfur and more than 5000 PPM salt
Cantey soils--have argillic horizons and are on higher areas
Chewacla soils--have dominant chroma of more than 2 in the upper 20 inches of the soil
Johnston soils--have an umbric epipedon more than 24 inches thick and less than 18 percent clay in the particle-size control section
Leaf soils--have argillic horizons and are on higher areas
Riverview soils--have dominant chroma of more than 2 in the upper 20 inches of the soil
Shellbluff soils--have dominant chroma of more than 2 in the upper 20 inches of the soil
Tawcaw soils--have dominant chroma of more than 2 in the upper 20 inches of the soil
Wehadkee soils--have less than 35 percent clay

DRAINAGE AND PERMEABILITY:

Drainage Class (Agricultural): Poorly drained
Internal Free Water Occurrence: Very shallow, persistent
Flooding Frequency and Duration: Frequent or occasional for brief to very long periods
Ponding Frequency and Duration: None
Index Surface Runoff: Negligible or ponded
Permeability: Slow

USE AND VEGETATION:

Major Uses:
Dominant Vegetation: Where cultivated--pasture. Where wooded--tupelo and cypress are common in the ponded or frequently flooded areas, areas that are not ponded or frequently flooded are typically green ash, cottonwood, sweetgum, water oak, willow oak, and cherry-bark oak.

DISTRIBUTION AND EXTENT:

Distribution: Alabama, Arkansas, Florida, Georgia, Louisiana, North Carolina, Oklahoma, South Carolina, Texas, and Virginia

Extent: Large

Chastain, Tawcaw, Chewacla

Table 4. Representative soil features

Surface texture	(1) Sandy loam (2) Fine sandy loam
Drainage class	Somewhat poorly drained
Permeability class	Very slow
Soil depth	150 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (0-101.6cm)	27.94 – 35.56 cm
Calcium carbonate equivalent (0-101.6cm)	Not specified
Electrical conductivity (0-101.6cm)	Not specified
Sodium adsorption ratio (0-101.6cm)	Not specified
Soil reaction (1:1 water) (0-101.6cm)	4.5 – 5.5
Subsurface fragment volume <=3" (Depth not specified)	Not specified

Subsurface fragment volume >3" (Depth not specified)	Not specified
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Ecological dynamics

Flooding is the most important ecological factor in this system. Frequency and duration of flooding determines the occurrences of different associations and separates the system from other kinds of wetlands. Flooding brings nutrients and excludes non-flood-tolerant species. When flooded, the system has a substantial aquatic faunal component, with high densities of invertebrates, and may play an important role in the life cycle of fish in the associated river. Unusually long or deep floods may stress vegetation or act as a disturbance for some species. Larger floods cause local disturbance by scouring and depositing sediment along channels, and occasionally causing channel shifts. However, the low gradient and binding of sediment by vegetation generally makes these processes much slower and less frequent than in river systems of most other regions. Except for primary successional communities such as bars, most forests exist naturally as multi-aged old-growth forests driven by gap-phase regeneration. Wind throw is probably the most important cause of gaps. Fire is not believed to be important, due to low flammability of much of the vegetation, wetness, and abundance of natural firebreaks. However, some areas of bottomlands apparently were once canebrakes, which presumably were maintained by periodic fire. 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

State and transition model

Figure 5. image

Additional community tables

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:
