

## Ecological site PX136X00X640

### Low terraces and drains, occasional inundation

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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): 136X–Southern Piedmont

This area is in North Carolina (29 percent), Georgia (27 percent), Virginia (21 percent), South Carolina (16 percent), and Alabama (7 percent). It makes up about 64,395 square miles (166,865 square kilometers). (Ag Bulletin 296)

The northeast-southwest trending Piedmont ecoregion comprises a transitional area between the mostly mountainous ecoregions of the Appalachians to the northwest and the relatively flat coastal plain to the southeast. It is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks with moderately dissected irregular plains and some hills. (EPA Ecoregions descriptions)

ADD APPROPRIATE ECOREGION DESCRIPTION(S)

#### Classification relationships

A PROVISIONAL ECOLOGICAL SITE is a conceptual grouping of soil map unit components within a Major Land Resource Area (MLRA) based on the similarities in response to management. Although there may be wide variability in the productivity of the soils grouped into a Provisional Site, the soil vegetation interactions as expressed in the State and Transition Model are similar and the management actions required to achieve objectives, whether maintaining the existing ecological state or managing for an alternative state, are similar. Provisional Sites are likely to be refined into more precise group during the process of meeting the APPROVED ECOLOGICAL SITE DESCRIPTION criteria.

This PROVISIONAL ECOLOGICAL SITE has been developed to meet the standards established in the National Ecological Site Handbook. The information associated with this ecological site does not meet the Approved Ecological Site Description Standard, but it has been through a Quality Control and Quality Assurance processes to assure consistency and completeness. Further investigations, reviews and correlations are necessary before it becomes an Approved Ecological Site Description.

#### Ecological site concept

This ecological site occurs on poorly drained hydric soils along flood plains, drainageways, and backswamps that are seasonally flooded. This site has pronounced hummock-and-hollow microtopography. The tree canopy is closed to partially open and dominated by *Acer rubrum* and *Fraxinus pennsylvanica*. Other canopy associates may include *Nyssa sylvatica*, *Liquidambar styraciflua*, *Ulmus americana*, *Quercus lyrata*, *Quercus phellos*, *Quercus lyrata*, and *Populus heterophylla*. The shrub layer includes *Lindera benzoin*, *Leucothoe racemosa*, *Ilex verticillata*, *Viburnum* spp., and *Fraxinus pennsylvanica* saplings. The herb layer is characterized by *Saururus cernuus*, *Peltandra virginica*, *Boehmeria cylindrica*, *Triadenum walteri*, *Cinna arundinacea*, *Pilea pumila*, *Impatiens capensis*, *Osmunda regalis*, *Leersia oryzoides*, *Leersia virginica*, *Glyceria striata*, *Commelina virginica*, *Rumex verticillatus*, *Carex* spp., and *Polygonum arifolium*.

**Table 1. Dominant plant species**

|            |   |
|------------|---|
| Tree       | (1) <i>Acer rubrum</i><br>(2) <i>Fraxinus pennsylvanica</i> |
| Shrub      | (1) <i>Saururus cernuus</i>                                 |
| Herbaceous | Not specified   |

## Legacy ID

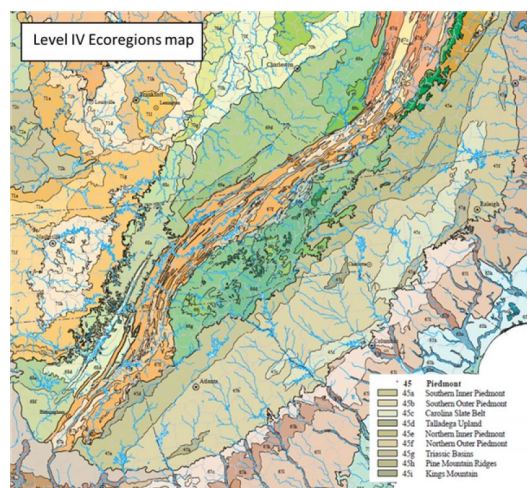
F136XY640VA

## Physiographic features

Most of MLRA 136 is in the Piedmont Upland Section of the Piedmont Province of the Appalachian Highlands. A very small part of the MLRA, in central North Carolina, is in the Atlantic Plain Division. A very small part in the Roanoke, Virginia, area is on the eastern edge of the Blue Ridge Province of the Appalachian Highlands. This MLRA is a rolling to hilly upland with a well-defined drainage pattern. The original plateau has been dissected by streams, resulting in narrow to fairly broad upland ridgetops and short slopes. Valley floors are very narrow, and stream terraces are minor. Elevation ranges from 330 to 1,310 feet (100 to 400 m), increasing gradually from south to north.

### Geology:

Precambrian and Paleozoic metamorphic and igneous rocks underlie almost all of this MLRA. The dominant metamorphic rock types include biotite gneiss, schist, slate, quartzite, phyllite, and amphibolite. The dominant igneous rock types are granite and metamorphosed granite. Some gabbro and other mafic igneous rocks also occur, and diabase dikes are not uncommon. The Carolina Slate terrane occurs just east of an imaginary centerline in this MLRA. It consists of metamorphic rocks with some metavolcanics and metasediments. Scattered graben basins, which are bounded by faults where the ground between the faults has dropped down, occur from South Carolina to south of Charlottesville and Richmond, Virginia. These basins have Triassic and Jurassic siltstone, shale, sandstone, and mudstone. River valleys have recent alluvium and few terraces.



**Figure 1. EPA Level IV Ecoregions map.**

**Table 2. Representative physiographic features**

|                    |  |
|--------------------|--|
| Landforms          | (1) Depression<br>(2) Backswamp<br>(3) Swale |
| Flooding duration  | Long (7 to 30 days)                          |
| Flooding frequency | None to frequent                             |
| Ponding frequency  | Rare to frequent                             |

|                   |                                    |
|-------------------|------------------------------------|
| Slope             | 0–7%                               |
| Water table depth | 0–76 cm                            |
| Aspect            | Aspect is not a significant factor |

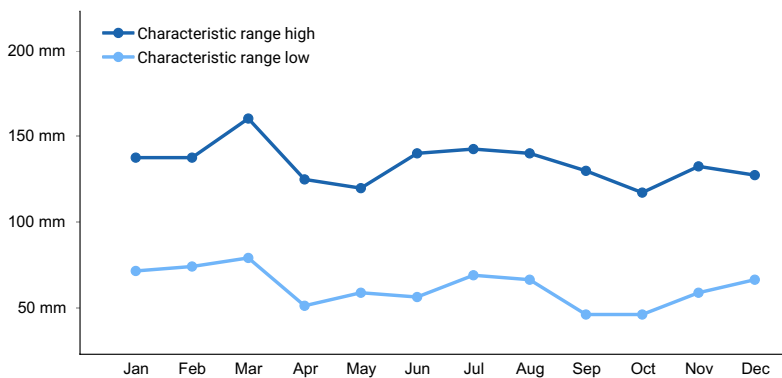
## Climatic features

This ecological site occurs in the thermic temperature regime for MLRA 136. The thermic soil temperature regime has mean annual soil temperatures of 15° C or more, but less than 22 °C; and a difference between mean summer and mean winter soil temperatures of greater than 5 °C at 50 cm below the surface.

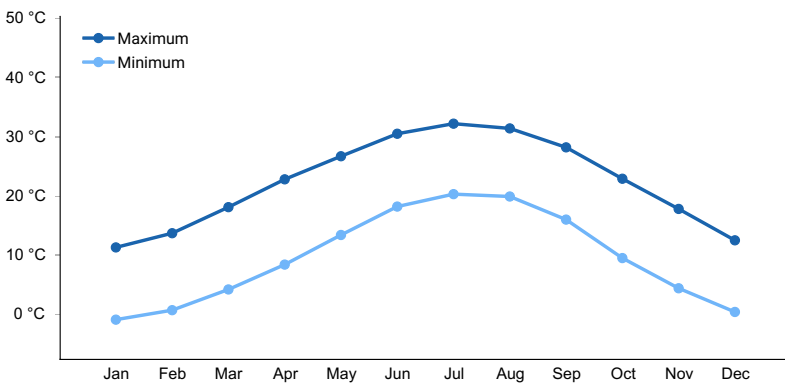
The average annual precipitation is 45 to 60 inches (1,145 to 1,525 millimeters) and is as much as 75 inches (1,905 millimeters) in a small, high-elevation area in northeastern Georgia. The precipitation generally is evenly distributed throughout the year. It is lowest in autumn. Most of the rainfall occurs as high-intensity, convective thunderstorms during the growing season. Significant moisture also comes from the movement of warm and cold fronts across the MLRA from November to April. High amounts of rain can occur during hurricanes at the same time of the year. Snowfall typically is light. The average annual temperature is 53 to 64 degrees F (12 to 18 degrees C). The freeze-free period averages 230 days and ranges from 185 to 275 days. Both the mean annual temperature and length of the freeze-free period increase from north to south and with decreasing elevation.

**Table 3. Representative climatic features**

|                               |          |
|-------------------------------|----------|
| Frost-free period (average)   | 195 days |
| Freeze-free period (average)  | 225 days |
| Precipitation total (average) | 1,321 mm |



**Figure 2. Monthly precipitation range**



**Figure 3. Monthly average minimum and maximum temperature**

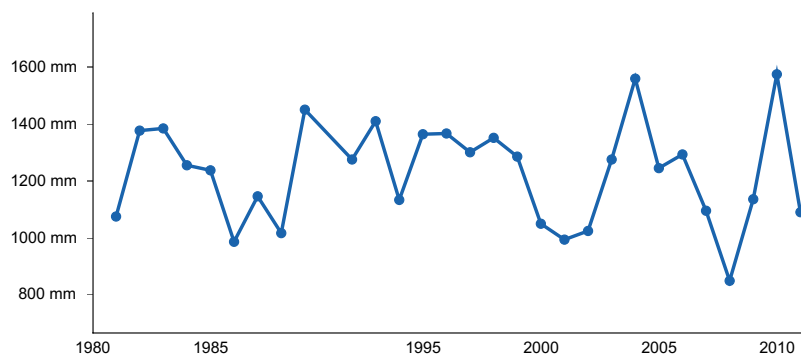


Figure 4. Annual precipitation pattern

## Climate stations used

- (1) COVINGTON [USC00092318], Covington, GA
- (2) ATHENS BEN EPPS AP [USW00013873], Athens, GA
- (3) COLUMBUS METRO AP [USW00093842], Columbus, GA
- (4) ASHLAND 3 ENE [USC00010369], Ashland, AL
- (5) ROCKFORD 3 ESE [USC00017020], Rockford, AL
- (6) DALLAS 7 NE [USC00092485], Dallas, GA
- (7) EXPERIMENT [USC00093271], Griffin, GA
- (8) GAINESVILLE [USC00093621], Gainesville, GA
- (9) MILLEDGEVILLE [USC00095874], Milledgeville, GA
- (10) SALISBURY [USC00317615], Salisbury, NC
- (11) SILER CITY 2 N [USC00317924], Siler City, NC
- (12) CHESNEE 7 WSW [USC00381625], Chesnee, SC
- (13) CLEMSON UNIV [USC00381770], Clemson, SC
- (14) CARROLLTON [USC00091640], Carrollton, GA
- (15) ALBEMARLE [USC00310090], Albemarle, NC
- (16) ASHEBORO 2 W [USC00310286], Asheboro, NC
- (17) GREENWOOD [USC00383754], Greenwood, SC
- (18) NEWBERRY [USC00386209], Newberry, SC
- (19) CROZIER [USC00442142], Maidens, VA
- (20) WEST POINT [USC00099291], Lanett, GA
- (21) SIMMS WTP [USC00387885], Chesnee, SC
- (22) CHASE CITY [USC00441606], Chase City, VA
- (23) HICKORY FAA AP [USW00003810], Hickory, NC
- (24) CHARLOTTE DOUGLAS AP [USW00013881], Charlotte, NC

## Influencing water features

### Soil features

This ecological site occurs within the thermic soil temperature regime, which is defined as: The mean annual soil temperature is 15 degrees C or higher but lower than 22 degrees C, and the difference between mean summer and mean winter soil temperatures is 6 degrees C. Representative components are the Armenia, Roanoke, Wehadkee, and Worsham soil series. The Pouncey soil series is included in this soil grouping and has a restrictive layer that occurs between 50 and 100 cm (20 and 40 inches). Both drained and undrained phases have been included in this soil grouping, but the drained components will likely be removed as field work progresses.

Table 4. Representative soil features

|                 |  |
|-----------------|--|
| Surface texture | (1) Loam<br>(2) Silt loam<br>(3) Fine sandy loam |
| Drainage class  | Very poorly drained to poorly drained            |

|   |                       |
|---|-----------------------|
| Permeability class                                    | Very slow to moderate |
| Soil depth  | 152 cm                |
| Available water capacity (0-101.6cm)                  | 7.62–30.48 cm         |
| Calcium carbonate equivalent (0-101.6cm)              | 0%                    |
| Electrical conductivity (0-101.6cm)                   | 0 mmhos/cm            |
| Sodium adsorption ratio (0-101.6cm)                   | 0                     |
| Soil reaction (1:1 water) (0-101.6cm)                 | 4–6.5                 |
| Subsurface fragment volume <=3" (Depth not specified) | 0–6%                  |

## Ecological dynamics

This forest occurs in backswamps, watercourses, flats and depressions that are flooded for significant portions of the growing season. These areas receive some nutrient inputs from adjacent uplands or overland flooding and have soils that are moderately calcareous. The substrate is deep muck with a pronounced hummock-and-hollow microtopography.

## State and transition model

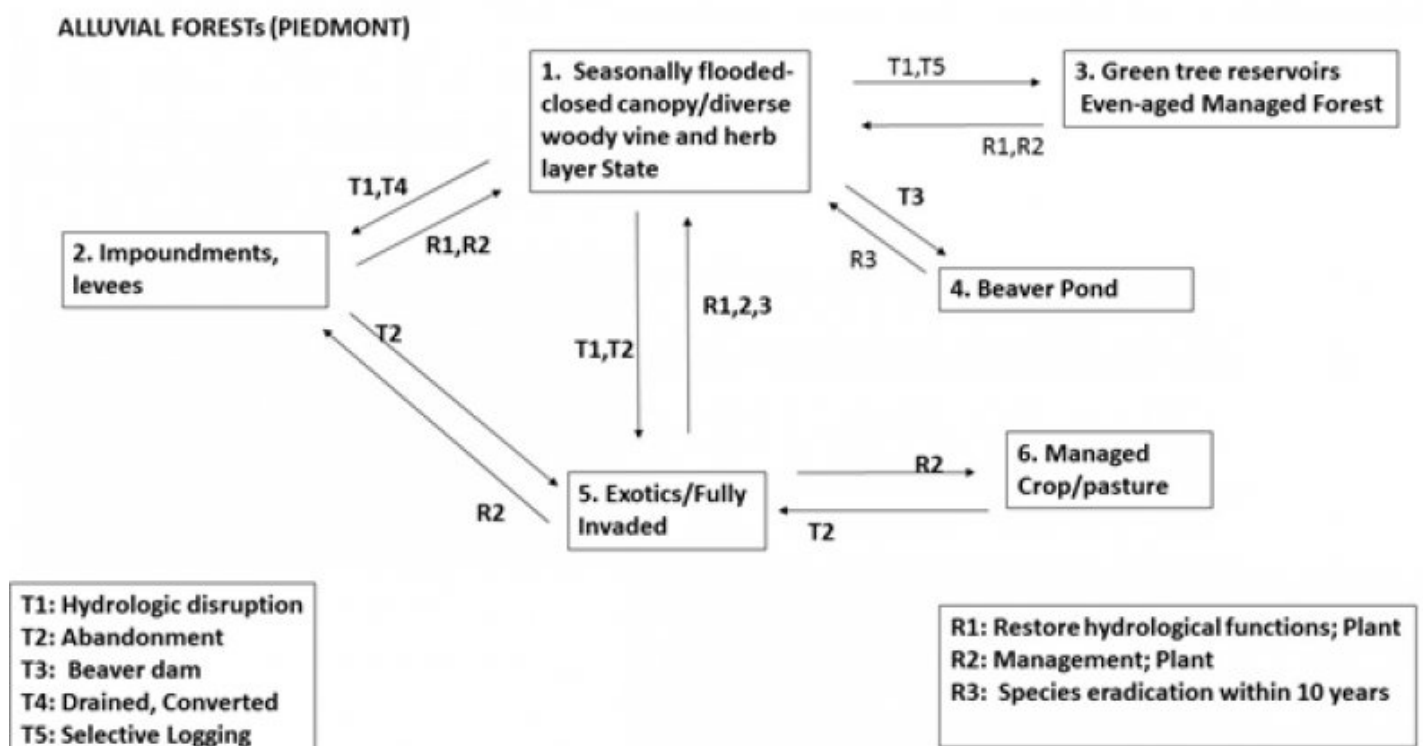


Figure 6. state and transition model

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United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

## 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:**

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

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

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

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

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

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

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

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

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

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

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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:

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

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

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

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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:**

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17. **Perennial plant reproductive capability:**

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