USDA Natural Resources Conservation Service

Ecological site PX136X00X900
Talladega Upland and Pine Mountain Acidic High Hills and Ridges, Dry, Metasedimentary

Accessed: 05/11/2025

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 is thought to occur more often on lower landscape positions, perhaps on north-facing slopes. It is associated with steep slopes and soils weathered from phyllite.

Table 1. Dominant plant species

Tree	(1) *Quercus prinus* (2) *Oxydendrum arboreum*
Shrub	Not specified
Herbaceous	(1) *Vitis rotundifolia*

Legacy ID

F136XY900AL

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.

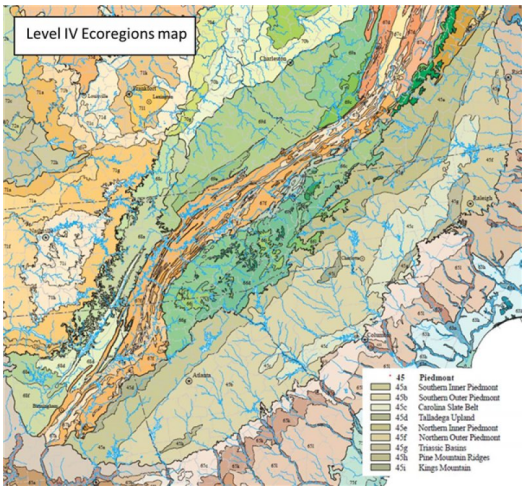

Figure 1. EPA Level IV Ecoregions map.

Table 2. Representative physiographic features

Landforms	(1) Hill (2) Ridge
Flooding frequency	None
Ponding frequency	None
Slope	2–70%
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)	52 in

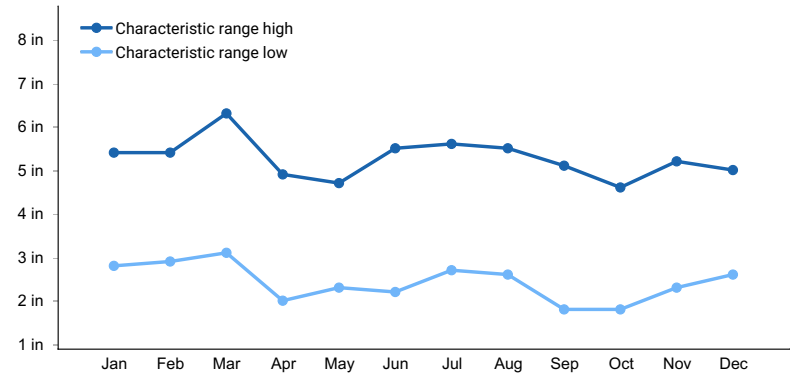

Figure 2. Monthly precipitation range

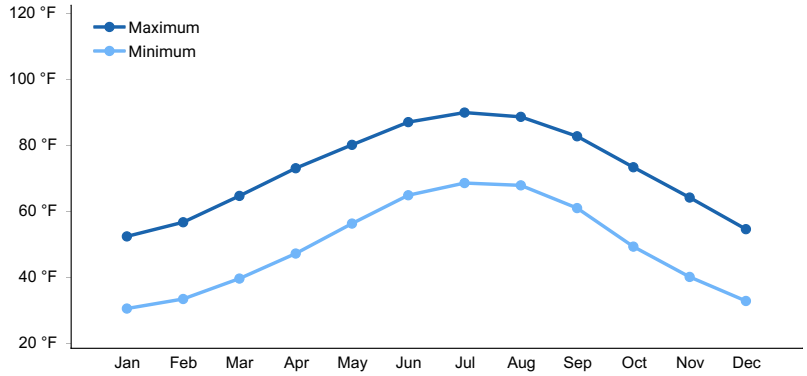

Figure 3. Monthly average minimum and maximum temperature

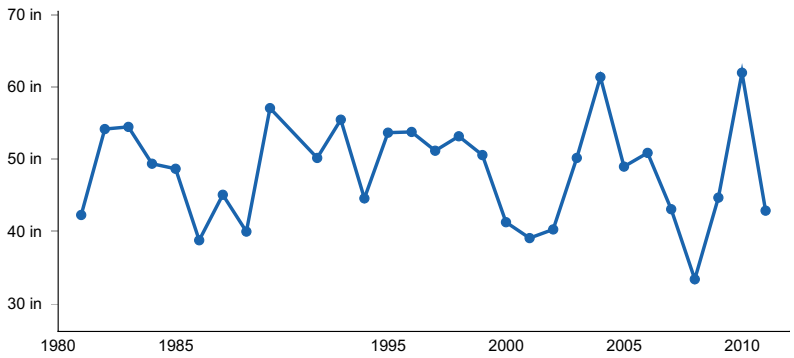

Figure 4. Annual precipitation pattern

Climate stations used

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

Influencing water features

Soil features

Soils associated with this ecological site fall within the thermic soil temperature regime of MLRA 136. The thermic soil temperature regime is defined as having a difference in soil temperature of 6 degrees C or more between mean summer (June, July, and August in the Northern Hemisphere) and mean winter (December, January, and February in the Northern Hemisphere) and a mean annual soil temperature of:15 degree C (59 degrees F) to 22 degrees C (72 degrees F). These Typic Hapludults have a restrictive layer within 100 cm (40 inches) of the soil surface. They formed from residuum from schist, slate, and phyllite and are well drained. Representative components are the Tallapoosa and Weogufka soil series.

Table 4. Representative soil features

Parent material	(1) Residuum–slate
Surface texture	(1) Gravelly loam (2) Channery fine sandy loam (3) Silt loam
Drainage class	Well drained
Permeability class	Moderately rapid
Soil depth	10–100 in
Surface fragment cover <=3"	0–3%
Available water capacity (0-40in)	2–6 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)	4.6–5.3
Subsurface fragment volume <=3" (Depth not specified)	5–35%

Ecological dynamics

This ecological site is thought to have supported longleaf pine at one time on infertile slopes and ridges in the Carolina Slate Belt. This type depends on frequent fire and is nearly extirpated from the Southern Piedmont. In the absence of fire it has been replaced by types that include pine and oak overstory trees.

Historically, oak forests were maintained by fires, as rural agricultural populations used fire much as Native Americans has before them. By 1940, fires suppression became common, dramatically decreasing the frequency and size of fires, which gradually altered the species composition of oak forests.

Frequent fires favored oaks over most other hardwoods because oaks have thick bark and a tenacious ability to resprout after their tops are killed by a fire. Frequent fires also favored oak regeneration because competition from shade tolerant, fire intolerant understory and midstory species was reduced. The reduction in fire frequency over the past century has allowed shade-tolerant, fire-sensitive trees such as American beech to replace oaks in many previously oak-dominated forests in the Southeastern United States. Oak forests are now less open than in the past, due to less frequent fires.

The lack of oak regeneration, particularly on moist sites, is a concern to conservationists. Here the density of moisture-loving species in the understory prevents the establishment of young oaks as the overstory oaks die or are harvested. On drier sites, the understory is more open, and oaks are able to regenerate and maintain themselves.

A combination of prescribed burns and selective removal can open up the understory and facilitate oak regeneration, thereby helping restore a forest that historically was dominated by oaks.

State and transition model

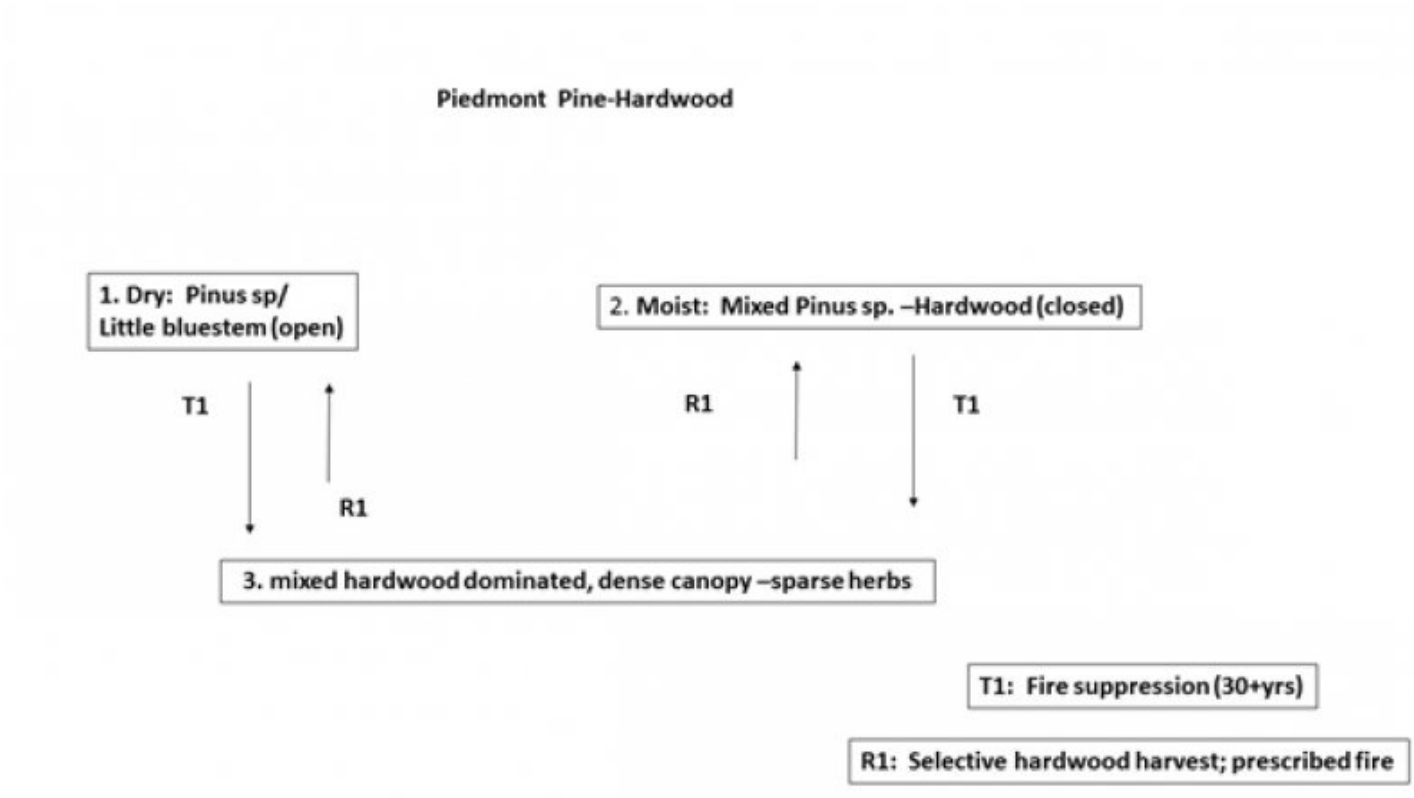

Figure 6. state and transition model

Other references

Edwards, L., J. Ambrose, and L.K. Kirkman. 2013. The Natural Communities of Georgia. The University of Georgia Press. Athens and London.

Environmental Protection Agency (EPA). 2004. Level III and IV Ecoregions of EPA Region 4. U.S. Environmental Protection Agency, National Health and Environmental Effects Research Laboratory. Western Ecology Division, Corvallis, Oregon. Scale 1:2,000,000.

Fleming, Gary P. and Karen D. Patterson. 2013. Natural Heritage Report 13-16. Natural Communities of Virginia: Ecological Groups and Community Types. Virginia Department of Conservation and Recreation, Division of Natural Heritage, Richmond, Virginia. 36 pages.

NatureServe. 2013. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available http://www.natureserve.org/explorer. (Accessed May 24, 2013).

Nelson, John B. 1986. The natural Communities of South Carolina: Initial Classification and Description. South Carolina Wildlife and Marine Resources Department.

Schafale, M. P. 2012. Classification of the natural communities of North Carolina, 4th Approximation. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation, Natural Heritage Program, Raleigh.

Schafale, M. P., and A. S. Weakley. 1990. Classification of the natural communities of North Carolina. Third approximation. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation, Natural Heritage Program, Raleigh. 325 pp.

Skeen, J. N., M. E. B. Carter, and H. L. Ragsdale. 1980. Yellow-poplar: The Piedmont case. Bulletin of the Torrey Botanical Club 107:1-6.

Spira, Timothy P. 2011. Wildflowers and Plant Communities of the Southern Appalachian Mountains and Piedmont. The University of North Carolina Press. Chapel Hill.

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.

Wharton, C.H. 1978. The natural environments of Georgia. Bulletin 114. Georgia Department of Natural Resources. Atlanta.Schafale, M. P. 2012. Classification of the natural communities of North Carolina, 4th Approximation. North Carolina Department of Environment, Health, and Natural Resources, Division of Parks and Recreation, Natural Heritage Program, Raleigh.

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land Resource Regions and Major Land Resource Areas of the Unites 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:**

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:

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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:**
