

## Ecological site PX133A00X009 Mesic Hardwood Forest

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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 upland system of the Atlantic Coastal Plain ranges from southern New Jersey south to Georgia in a variety of moist but non-wetland sites that are naturally sheltered from frequent fire. Such sites include lower slopes and bluffs along streams and rivers in dissected terrain, mesic flats between drier pine-dominated uplands and floodplains, and local topographic high areas within bottomland terraces or nonriverine wet flats. Soil 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 deciduous hardwood species, such as *Fagus grandifolia* or *Acer barbatum*. Its southern limit is generally exclusive of the natural range of *Pinus glabra* as

mapped by Kossuth and Michael (1990) and Magnolia grandiflora as mapped by Outcalt (1990). Upland and bottomland oaks at the mid range of moisture tolerance are usually also present, particularly Quercus alba, but sometimes also Quercus pagoda, 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. Within its range, Sabal minor may be a prominent shrub. Species richness may be fairly high in basic sites but is fairly low otherwise.

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>Liriodendron tulipifera</i> (2) <i>Quercus michauxii</i>
Shrub	(1) <i>Alnus serrulata</i> (2) <i>Lindera benzoin</i>
Herbaceous	(1) <i>Hydrangea quercifolia</i> (2) <i>Chasmanthium latifolium</i>

Legacy ID

F133AY009NC

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) Scarp slope
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Climatic features

Influencing water features

Soil features

Susquehanna COMPETING SERIES: These are the Annona, Bryarly, and Woodville series in the same family and

the closely related Angie, Boswell, Iredell, Kipling, Oktibbeha, Shubuta, White Store, and Wilcox series. Annona and Woodville soils range from medium acid to moderately alkaline in the lower part of the B horizon. Bryarly soils are mildly alkaline or moderately alkaline and are calcareous in the lower part of the B horizon and have few to common soft masses of calcium carbonate. Angie soils have a yellowish brown Bt horizon and have less than 35 percent base saturation. Boswell soils do not have gray mottles in the upper 10 inches of the Bt horizon. Irdell and Oktibbeha soils have a Bt horizon less than 50 inches thick and do not have gray mottles in the upper 10 inches of the Bt horizon. Kipling soils have a yellowish brown Bt horizon that is less than 50 inches thick. Shubuta soils have mixed mineralogy and do not have mottles within the upper 30 inches of the solum. White Store soils have less than 35 percent base saturation. Wilcox soils have a Bt horizon that is less than 50 inches thick.

**GEOGRAPHIC SETTING:** These nearly level to steep soils are in erosional uplands of the Southern Coastal Plain. Slopes range from 1 to 17 percent. These soils formed in marine or stream deposits of silty clay and clay. The climate is warm and humid. The mean annual temperature is 68 degrees F., and average annual precipitation is 61 inches near the type location.

**GEOGRAPHICALLY ASSOCIATED SOILS:** These are the Angie, Boswell, Shubuta, and Wilcox soils of the competing series and the Cahaba, Cowarts, Izagora, Lucy, Rumford, Ruston, and Wicksburg soils. Moderately well drained Angie and Boswell soils, well drained Shubuta soils, and somewhat poorly drained Wilcox soils are in similar positions as the Susquehanna soils. Well drained Cahaba soils and moderately well drained Izagora soils, which are on terraces, are in a fine-loamy family. Well drained Cowarts, Ruston, and Wicksburg soils are on broader, smoother slopes. In addition, Cowarts and Ruston soils are in a fine-loamy family and Wicksburg soils have kaolinitic mineralogy. Well drained Lucy soils and somewhat excessively drained Rumford soils, which mainly are in slightly higher positions on hillslopes, are in a loamy, siliceous family.

**DRAINAGE AND PERMEABILITY:** Somewhat poorly drained; very slow permeability; moderate to very rapid runoff. These soils are wet during periods of high rainfall, but they do not have a free water table.

**USE AND VEGETATION:** Most areas of Susquehanna soils are used for woodland. Some areas are used for pasture. Principal vegetation of wooded areas is mixed hardwood and pine forests.

## **Ecological dynamics**

This system occurs in a variety of moist non-wetland sites that are naturally sheltered from frequent fire. Most common are lower slope and bluff examples along streams and rivers in dissected terrain, but some examples occur on mesic flats between drier pine-dominated uplands and floodplains or on local high areas within bottomland terraces or nonriverine wet flats. Soils cover the full range of mineral soil textures, except the coarsest sands. Soils are not saturated for any significant time during the growing season and seldom, if ever, are extremely dry. Soils developed from calcareous materials or rich alluvium may be basic; others are strongly acidic. Sites are protected from most natural fires by steep topography or by surrounding extensive areas of non-flammable vegetation.

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## State and transition model

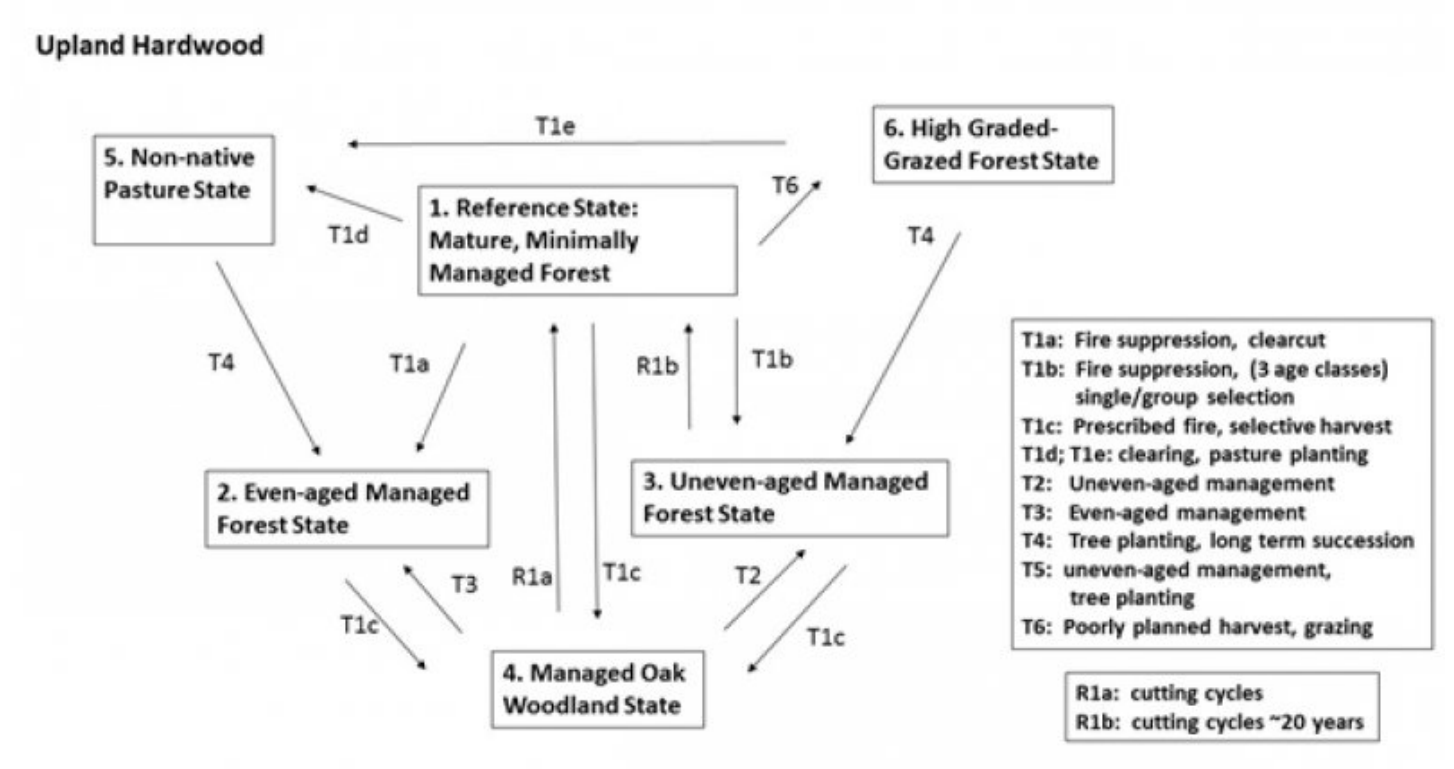


Figure 1. image

## 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:

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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:**
- 
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:
- 
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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