USDA Natural Resources Conservation Service

Ecological site F128XY521WV
Mesic Low Stream Terrace Alluvium

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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): 128X–Southern Appalachian Ridges and Valleys

MLRA 128, partially shown as the gray shaded area on the accompanying figure, falls into the East and Central Farming and Forest Region. This MLRA is in Tennessee (36 percent), Alabama (27 percent), Virginia (25 percent), and Georgia (12 percent). It makes up about 21,095 square miles (54,660 square kilometers).

Most of this MLRA is in the Tennessee Section of the Valley and Ridge Province of the Appalachian Highlands. The thin stringers in the western part of the area are mostly in the Cumberland Plateau Section of the Appalachian Plateaus Province of the Appalachian Highlands. A separate area of the MLRA in northern Alabama is in the Highland Rim Section of the Interior Low Plateaus Province of the Interior Plains. The western side of the area is dominantly hilly to very steep and is rougher and much steeper than the eastern side, much of which is rolling and hilly. Elevation ranges from 660 feet (200 meters) near the southern end of the area to more than 2,400 feet (730 meters) in the part of the area in the western tip of Virginia. Some isolated linear mountain ridges rise to nearly 4,920 feet (1,500 meters) above sea level.

The MLRA is highly diversified. It has many parallel ridges, narrow intervening valleys, and large areas of low, irregular hills. The bedrock in this area consists of alternating beds of limestone, dolomite, shale, and sandstone of early Paleozoic age. Ridgetops are capped with more resistant carbonate and sandstone layers, and valleys have been eroded into the less resistant shale beds. These folded and faulted layers are at the southernmost extent of the Appalachian Mountains. The narrow river valleys are filled with unconsolidated deposits of clay, silt, sand, and gravel.

Ecological site concept

This PES occurs primary in alluvium on low stream terraces in the mesic temperature regime of the southern ridge and valley. Forests will be mixed hardwoods with water loving oaks, maples and beech commonly occurring.

Table 1. Dominant plant species

Tree	(1) *Quercus phellos* (2) *Ulmus rubra*
Shrub	(1) *Ulmus alata*
Herbaceous	Not specified

Physiographic features

This PES occurs primary in alluvium on low stream terraces in the mesic temperature regime of the southern ridge and valley.

Table 2. Representative physiographic features

Landforms	(1) Stream terrace (2) Fan
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to occasional
Ponding duration	Very brief (4 to 48 hours) to brief (2 to 7 days)
Ponding frequency	None to occasional
Elevation	298–2,998 ft
Slope	0–15%
Ponding depth	0–30 in
Water table depth	6–65 in
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation in most of this area is 41 to 55 inches (1,040 to 1,395 millimeters). It increases to the south and is as much as 66 inches (1,675 millimeters) at the highest elevations in east Tennessee and the northwest corner of Georgia. The maximum precipitation occurs in midwinter and midsummer, and the minimum occurs in autumn. Most of the rainfall occurs as high-intensity, convective thunderstorms. Snowfall may occur in winter. The average annual temperature is 52 to 63 degrees F (11 to 17 degrees C), increasing to the south. The freeze-free period averages 205 days and ranges from 165 to 245 days. It is longest in the southern part of the area and shortest at high elevations and at the northern end.

Table 3. Representative climatic features

Frost-free period (average)	150 days
Freeze-free period (average)	181 days
Precipitation total (average)	44 in

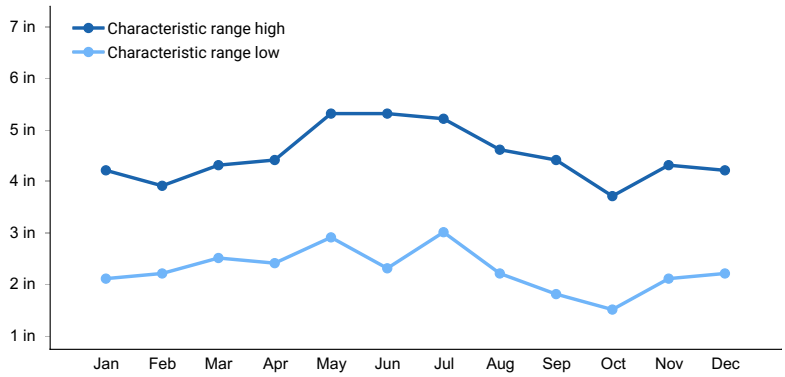

Figure 1. Monthly precipitation range

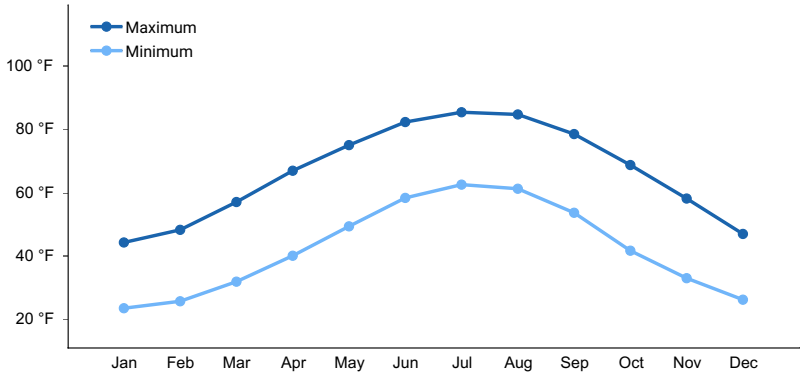

Figure 2. Monthly average minimum and maximum temperature

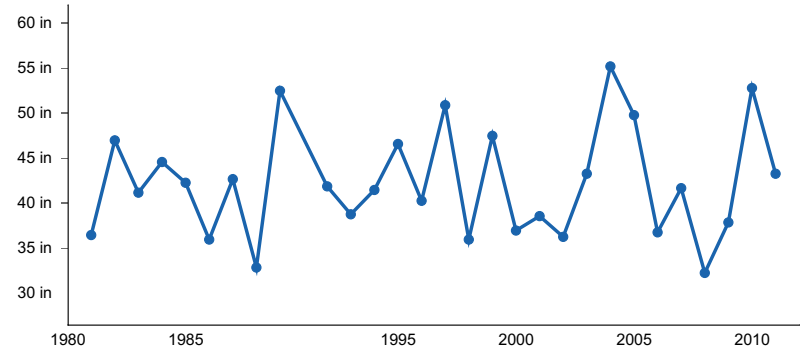

Figure 3. Annual precipitation pattern

Climate stations used

- (1) ROANOKE RGNL AP [USW00013741], Roanoke, VA
- (2) COVINGTON FLTR PLT [USC00442044], Covington, VA
- (3) LEBANON [USC00444777], Lebanon, VA
- (4) WYTHEVILLE 1 S [USC00449301], Wytheville, VA
- (5) TAZEWELL [USC00408868], Tazewell, TN

Influencing water features

This ecological site may be influenced by wetland or riparian water features. Field investigation is required.

Soil features

These soils formed primary in alluvium on low stream terraces. The slopes range from 0 to 25 percent. They are deep and very deep (40 to more than 60 inches) to bedrock, and range from somewhat poorly to well drained. The available water capacity of these soils ranges from low to high. The depth to a seasonal high water table ranges from 0 to more than 6 feet. The flooding and ponding frequencies range from none to occasional. The soil reaction ranges from extremely acid to moderately alkaline (pH from 3.5 to 8.4).

The soil series associated with this site are: Allegheny, Alonzville, Botetourt, Buchanan, Capshaw, Cotaco, Coursey, Ebbing, Ernest, Ingledove, Leadvale, McGary, Mongle, Monongahela, Moomaw, Nicelytown, Sequatchie, Sugarhol, Swafford, Toms, Tygart, Tyler, Wheeling, Whitwell, Zoar

Parent Material Kind: alluvium, colluvium, loess, residuum

Parent Material Origin: siltstone, unspecified; shale, unspecified; shale and siltstone; sandstone, unspecified; sandstone and siltstone; sandstone and shale; quartzite; limestone, unspecified; limestone, sandstone and shale; limestone and shale; limestone and sandstone; interbedded sedimentary; igneous, metamorphic and sedimentary; igneous and metamorphic

Table 4. Representative soil features

Parent material	(1) Alluvium–limestone and shale (2) Colluvium–shale and siltstone (3) Loess–sandstone and siltstone
Surface texture	(1) Cobbly fine sandy loam (2) Loam (3) Sandy loam
Drainage class	Somewhat poorly drained to well drained
Permeability class	Slow to rapid
Soil depth	15–54 in
Surface fragment cover <=3"	0–2%
Surface fragment cover >3"	2%
Available water capacity (0-40in)	4.7–8.2 in
Soil reaction (1:1 water) (0-40in)	4.6–6.2
Subsurface fragment volume <=3" (Depth not specified)	0–40%
Subsurface fragment volume >3" (Depth not specified)	0–20%

Ecological dynamics

DeSelm had three plots on this PES. He classifies two of them as alluvial flats and one as a terrace of the Nolichucky river. The plots are in Cocke and Hamblem counties in TN. He classifies the forest type as willow oak-beech-white oak, mixed oak-beech-red maple and willo-elm-swamp.

State and transition model

Other references

DeSelm, Hal. 1989 – 2009. Natural Terrestrial Vegetation of Tennessee (Vegetation Plot Data). Unpublished raw data. http://treeimprovement.utk.edu/DeSelmData/DataDSC.htm

Griffith, G.E., Omernik, J.M., and Azevedo, S.H., 1997, Ecoregions of Tennessee: Corvallis, Oregon, U.S. Environmental Protection Agency EPA/600R-97/022, 51 p.

Martin, William H. 1989. Forest patterns in the Great Valley of Tennessee. Journal of the Tennessee Academy of Science 64(3): 137 – 143.

Thornthwaite, Charles W. 1948. An approach toward a rational classification of climate. Geographical Review 38(1): 55-94.

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.

Vegetation plot data. 2015. Retrieved from: http://vegbank.org/vegbank/index.jsp

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Retrieved from: http://www.basic.ncsu.edu/segap/

Contributors

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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:**

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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:**
