Ecological site F127XY011WV
Frigid High Elevation Uplands

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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): 127X–Eastern Allegheny Plateau and Mountains

This ecosite is found in mountains, plateau in MLRA 127: Eastern Allegheny Plateau and Mountains. This site occupies the Allegheny Mountain Section of the Appalachian Highlands of the Appalachian Plateau Province. The deeply dissected plateau in this area terminates in a high escarpment, the Allegheny Front, in the eastern part of the area. Steep slopes are dominant, but level to gently rolling plateau remnants are conspicuous in the northern part of the area. The area is dominantly forest, containing large blocks of state forest, game lands, and national forest. Less than one-tenth of the MLRA consists of urban areas.

Classification relationships

USDA-NRCS (USDA2 2006): Land Resource Region (LRR): N—East and Central Farming and Forest Region Major Land Resource Area (MLRA): 127—Eastern Allegheny Plateau and Mountains USDA-FS (Cleland et al. 2007) Province: 211 – Northeastern Mixed Forest Province (in Part) Section: 211G - Northern Unglaciated Allegheny Plateau Subsection: 211Ga – Allegheny High Plateau 211Gb – Allegheny Deep Valleys Province: 221 - Eastern Broadleaf Province (in part) Section: 221E - Southern Unglaciated Allegheny Plateau (in part) Subsection: 221Ea - Pittsburgh Low Plateau Province: M221 – Central Appalachian Broadleaf Forest – Coniferous Forest - Meadow Province (in part) Section: M221B - Allegheny Mountains Subsection: M221Ba – Northern High Allegheny Mountains M221Bb – Western Allegheny Mountains M221Bc – Southern High Allegheny Mountains M221Bd – Eastern Allegheny Mountain and Valley M221Be – Western Allegheny Mountain and Valley M221Bf – Allegheny Mountain Plateau Section: M221C - Northern Cumberland Mountains Subsection: M221Ca – Western Coal Fields This site crosswalks to Landfire biophysical setting (BpS)Central and Southern Appalachian Spruce-Fir Forest NatureServe (2007) describes this as Central and Southern Appalachian Spruce-Fir Forest CES202.028 Component Associations Association Unique ID Association Name CEGL006029 Picea rubens - Tsuga canadensis - Fagus grandifolia / Dryopteris intermedia Forest CEGL006152 Picea rubens - (Tsuga canadensis) / Rhododendron maximum Forest CEGL008501 Picea rubens / Betula alleghaniensis / Bazzania trilobata Forest

Ecological site concept

This site contains predominately frigid Inceptisols and located at high elevation (mean elevation 372 m to 1240 m). The vegetation system is considered as a Central and Southern Appalachian Spruce-Fir Forest (CES202.028) (NatureServe 2007).

Associated sites

F127XY002WV	**Spodic Intergrade Shale Upland Hardwood And Conifer Forest** Spodic Shale Upland Conifer Forest
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

Frigid High Elevation ecological sites occupy mountain sideslopes.

Table 2. Representative physiographic features

Landforms	(1) Mountains > Mountain slope
Runoff class	Low to very high
Elevation	370 – 1,240 m
Slope	Not specified
Water table depth	60 – 180 cm
Aspect	W, NW, N, NE, E, SE, S, SW

Climatic features

The climate is characteristic of of other ecological sites of high elevation areas in the Eastern Allegheny Plateau and Mountains with a warm to hot, humid summers climate with cold winters and moderate snowfall. Rainfall occurs mostly as high intensity convective thunderstorms.

Table 3 Representative climatic features

Frost-free period (characteristic range)	80-110 days
Freeze-free period (characteristic range)	110-140 days
Precipitation total (characteristic range)	1,370-1,500 mm
Frost-free period (actual range)	60-120 days
Freeze-free period (actual range)	100-140 days
Precipitation total (actual range)	1,320-1,520 mm

Frost-free period (average)	90 days
Freeze-free period (average)	120 days
Precipitation total (average)	1,420 mm

- (1) CANAAN VALLEY [USC00461393], Davis, WV
- (2) CANAAN VALLEY 2 [USC00461397], Davis, WV
- (3) DAVIS 3SE [USC00462211], Davis, WV
- (4) SNOWSHOE [USC00468308], Slatyfork, WV

Influencing water features

The are typically no water features associated with this site.

Soil features

Representative soils include: Briery, Leatherbark, Mandy, Simoda, Snowdog, Summers.

Table 4. Representative soil features

Parent material	(1) Colluvium (2) Residuum
Surface texture	(1) Loam
Drainage class	Somewhat poorly drained to well drained
Permeability class	Very slow to moderately slow
Soil depth	60 – 180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	0 – 30 %
Available water capacity (Depth not specified)	5.08 – 15.24 cm
Soil reaction (1:1 water) (Depth not specified)	3.5 – 7.8

Subsurface fragment volume <=3" (Depth not specified)	10 – 40 %
Subsurface fragment volume >3" (Depth not specified)	10 – 60 %

Ecological dynamics

Information contained in this section was adapted from several sources. The information presented is representative of very complex vegetation communities. Key indicator plants, animals and ecological processes are described to help inform land management decisions. Plant communities will differ across the MLRA because of the naturally occurring variability in weather, soils, and aspect. The reference plant community is not necessarily the management goal. The species lists are representative and are not botanical descriptions of all species occurring, or potentially occurring, on this site. They are not intended to cover every situation or the full range of conditions, species, and responses for the site.

From Landfire http://www.landfire.gov/index.php:

Vegetation consists primarily of forests dominated by Picea rubens, Abies fraseri, or Abies balsamea, occasionally by Sorbus americana. Betula alleghaniensis, Tsuga canadensis, and Quercus rubra are the only other locally common canopy species (NatureServe 2007).

This system produces stable, uneven-aged forest in various combinations of dense evergreen, broadleaf, and mixed forest with canopy dynamics dominated by gap-phase regeneration on a fine scale. The highest elevations support nearly pure expanses of Fraser fir (Abies fraseri) and/or red spruce (Picea rubens); balsam fir (Abies balsamea) replaces Fraser fir in VA and West VA north of Mount Rogers. Associated species in these upper elevations include yellow birch (Betula alleghaniensis), mountain ash (Sorbus americana), pin cherry (Prunus pensylvanica), mountain maple (Acer spicatum), hobble bush (Viburnum alnifolium), and bearberry (Vaccinium erthrocarpum). American beech (Fagus grandifolia) may occur in pure stands at a small scale. With decreasing elevations, typical northern hardwood species (B. alleghaniensis, F. grandifolia, and Aesculus flava) mix with P. rubens. As P. rubens drops out, various combinations of B. alleghaniensis, F. grandifolia, A. flava, Acer saccharum, and Quercus rubra dominate. Eastern hemlock (Tsuga canadensis) may be locally important.

A well-developed deciduous shrub layer is common, and a dense evergreen shrub layer (or shrub-dominated community - "heath balds") can develop on more exposed sites. A few associations have dense shrub layers of Rhododendron catawbiense, Rhododendron maximum, or Vaccinium erythrocarpum. The lower strata is often dense, and diversity may be high with many Southern Appalachian endemics; dominated by mosses, ferns, or forbs.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)

Inventory data references

Site Development and Testing Plan Future work is needed, as described in a future project plan, to validate the information presented in this provisional ecological site description. Future work includes field sampling, data collection and analysis by qualified vegetation ecologists and soil scientists. As warranted, annual reviews of the project plan can be conducted by the Ecological Site Technical Team. A final field review, peer review, quality control, and quality assurance reviews of the ESD are necessary to approve a final document.

Other references

Landfire http://www.landfire.gov/index.php

NatureServe. 2007. International Ecological Classification Standard: Terrestrial Ecological Classifications. NatureServe Central Databases. Arlington, VA, U.S.A. Data current as of 15 April 2007.

Approval

Greg Schmidt, 9/27/2024

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	09/24/2026
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):**

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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:**
