

Ecological site F127XY012WV

Convergent Uplands

Last updated: 9/27/2024
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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. This narrative was created from the Landfire Biophysical Setting (BpS) description

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 Unglaciaded Allegheny Plateau Subsection: 211Ga – Allegheny High Plateau 211Gb – Allegheny Deep Valleys Province: 221 - Eastern Broadleaf Province (in part) Section: 221E - Southern Unglaciaded 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) South-Central Interior Mesophytic Forest (1321) NatureServe's description (2007) for the equivalent ecological system CES 202.887 South-Central Interior Mesophytic Forest & CES 202.373 Southern and Central Appalachian Cove Forest South-Central Interior Mesophytic Forest Component Associations Association Unique ID Association Name CEGLO02411 *Fagus grandifolia* - *Acer saccharum* - *Liriodendron tulipifera* Unglaciaded Forest CEGLO04741 *Acer saccharum* - *Carya ovata* - *Juglans nigra* / *Symphoricarpos orbiculatus* / *Galium circaezans* Forest CEGLO04767 *Tsuga canadensis* - (*Liriodendron tulipifera*, *Fagus grandifolia*) / (*Magnolia macrophylla*, *Ilex opaca*) / *Polystichum acrostichoides* Forest CEGLO05043 *Tsuga canadensis* - *Fagus grandifolia* - *Acer saccharum* / (*Hamamelis virginiana*, *Kalmia latifolia*) Forest CEGLO05222 *Liriodendron tulipifera* - *Tilia americana* var. *heterophylla* - *Aesculus flava* - *Acer saccharum* / (*Magnolia tripetala*) Forest CEGLO06144 *Quercus alba* - *Fagus grandifolia* Western Allegheny Plateau Forest CEGLO06201 *Acer saccharum* - *Liriodendron tulipifera* - *Fraxinus americana* / *Staphylea trifolia* Forest CEGLO06237 *Acer saccharum* - *Fraxinus americana* - *Tilia americana* - *Liriodendron tulipifera* / *Actaea racemosa* Forest CEGLO07200 *Fagus grandifolia* Ridge and Valley Forest CEGLO07201 *Fagus grandifolia* - *Liriodendron tulipifera* / *Euonymus americanus* / *Athyrium filix-femina* ssp. *asplenioides* Forest CEGLO07213 *Quercus alba* - *Fagus grandifolia* / *Hydrangea quercifolia* - *Viburnum acerifolium* / *Carex picta* - *Polystichum acrostichoides* Forest CEGLO07220 *Liriodendron tulipifera* / (*Cercis canadensis*) / (*Lindera benzoin*) Ruderal Forest CEGLO07233 *Quercus alba* - *Quercus rubra* - *Carya ovalis* / *Acer saccharum* / *Polystichum acrostichoides* Forest CEGLO07698 *Quercus rubra* - *Acer saccharum* - *Tilia americana* var. *heterophylla* - *Aesculus flava* - (*Cladrastis kentukea*) Forest CEGLO07879 *Juglans nigra* / *Verbesina alternifolia* Ruderal Forest CEGLO07881 *Fagus grandifolia* - *Quercus alba* / *Cornus florida* Forest CEGLO08428 *Quercus alba* - (*Liriodendron tulipifera*, *Liquidambar styraciflua*) / *Calycanthus floridus* / *Athyrium filix-femina* Forest CEGLO08488 *Quercus rubra* - *Tilia americana* var. *heterophylla* - *Carya carolinae-septentrionalis* / *Acer (barbatum, leucoderme)* / *Hydrangea quercifolia* Forest Southern and Central Appalachian Cove Forest Component Associations Association Unique ID Association Name CEGLO04293 *Impatiens (capensis, pallida)* - *Monarda didyma* - *Rudbeckia laciniata* var. *humilis* Herbaceous Vegetation CEGLO04296 *Diphylleia cymosa* - *Saxifraga micranthidifolia* - *Laportea canadensis* Herbaceous Vegetation CEGLO04982 *Betula alleghaniensis* - *Tilia americana* var. *heterophylla* / *Acer spicatum* / *Ribes cynosbati* / *Dryopteris marginalis* Forest CEGLO06186 *Liriodendron tulipifera* - *Quercus rubra* - *Fraxinus americana* / *Asimina triloba* / *Actaea racemosa* - *Uvularia perfoliata* Forest CEGLO06237 *Acer saccharum* - *Fraxinus americana* - *Tilia americana* - *Liriodendron tulipifera* / *Actaea racemosa* Forest CEGLO06304 *Liriodendron tulipifera* - *Pinus strobus* - *Tsuga canadensis* - *Quercus (rubra, alba)* / *Polystichum acrostichoides* Forest CEGLO06472 *Tilia americana* var. *heterophylla* - *Aesculus flava* - *Acer saccharum* / *Cystopteris*

bulbifera - Asarum canadense Forest CEG007102 Pinus strobus - Tsuga canadensis / Rhododendron maximum - (Leucothoe fontanesiana) Forest CEG007136 Tsuga canadensis / Rhododendron maximum - (Clethra acuminata, Leucothoe fontanesiana) Forest CEG007220 Liriodendron tulipifera / (Cercis canadensis) / (Lindera benzoin) Ruderal Forest CEG007233 Quercus alba - Quercus rubra - Carya ovalis / Acer saccharum / Polystichum acrostichoides Forest CEG007291 Liriodendron tulipifera - Tilia americana var. heterophylla - (Aesculus flava) / Actaea racemosa Forest CEG007543 Liriodendron tulipifera - Betula lenta - Tsuga canadensis / Rhododendron maximum Forest CEG007693 Tsuga canadensis - Halesia tetraptera - (Fagus grandifolia, Magnolia fraseri) / Rhododendron maximum / Dryopteris intermedia Forest CEG007695 Aesculus flava - Acer saccharum - (Fraxinus americana, Tilia americana var. heterophylla) / Hydrophyllum canadense - Solidago flexicaulis Forest CEG007710 Liriodendron tulipifera - Fraxinus americana - (Tilia americana, Aesculus flava) / Actaea racemosa - Laportea canadensis Forest CEG007711 Tilia americana var. heterophylla - Fraxinus americana - (Ulmus rubra) / Sanguinaria canadensis - (Aquilegia canadensis, Asplenium rhizophyllum) Forest CEG007878 Quercus rubra - Tilia americana var. heterophylla - (Halesia tetraptera var. monticola) / Collinsonia canadensis - Prosartes lanuginosa Forest CEG008407 Tsuga canadensis - (Fagus grandifolia, Tilia americana var. heterophylla) / Magnolia tripetala Forest CEG008412 Acer (nigrum, saccharum) - Tilia americana / Asimina triloba / Jeffersonia diphylla - Caulophyllum thalictroides Forest CEG008510 Liriodendron tulipifera - Quercus rubra - Magnolia acuminata / Cornus florida Forest CEG008512 Tsuga canadensis - Quercus prinus - Liriodendron tulipifera / Kalmia latifolia - (Rhododendron catawbiense) Forest

Ecological site concept

These sites generally occur on uplands with MAAT > 45 degree F and median elevation The vegetation for this site ascribes to the following NatureServe's systems (2007): South-Central Interior Mesophytic Forest (CES202.887) and Southern and Central Appalachian Cove Forest (CES202.373)

Associated sites

F127XY013WV	Divergent Uplands
	Divergent Uplands

Table 1. Dominant plant species

Tree	(1) <i>Acer saccharum</i> (2) <i>Liriodendron tulipifera</i>
Shrub	(1) <i>Asimina triloba</i> (2) <i>Hamamelis virginiana</i>
Herbaceous	(1) <i>Actaea racemosa</i> (2) <i>Polystichum acrostichoides</i>

Physiographic features

These sites are formed from colluvium on mountain slopes, valley bottoms, and coves.

Table 2. Representative physiographic features

Runoff class	Low to very high
Elevation	50 – 1,080 m
Slope	0 – 90 %
Water table depth	Not specified

Aspect	W, NW, N, NE, E, SE, S, SW
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Climatic features

The climate is characteristic 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)	110-130 days
Freeze-free period (characteristic range)	140-160 days
Precipitation total (characteristic range)	1,040-1,350 mm
Frost-free period (actual range)	90-140 days
Freeze-free period (actual range)	130-180 days
Precipitation total (actual range)	970-1,450 mm
Frost-free period (average)	120 days
Freeze-free period (average)	150 days
Precipitation total (average)	1,220 mm

- (1) KANE 1NNE [USC00364432], Kane, PA
- (2) RIDGWAY [USC00367477], Ridgway, PA
- (3) EMPORIUM [USC00362629], Emporium, PA
- (4) CLEARFIELD LAWRENCE AP [USW00054792], Clearfield, PA
- (5) PRINCE GALLITZIN SP [USC00367167], Patton, PA
- (6) LAUREL SUMMIT [USC00364839], Boswell, PA
- (7) JOHNSTOWN CAMBRIA CO AP [USW00004726], Johnstown, PA
- (8) EBENSBURG SEWAGE PLT [USC00362470], Ebensburg, PA
- (9) TERRA ALTA #1 [USC00468777], Terra Alta, WV
- (10) MC HENRY 2 NW [USC00185832], Friendsville, MD
- (11) MT DAVIS [USC00366022], Fort Hill, PA
- (12) PARSONS 1 NE [USC00466867], Hambleton, WV
- (13) KUMBRABOW [USC00464971], Huttonsville, WV
- (14) RICHWOOD 1SSE [USC00467513], Richwood, WV
- (15) MCROSS 3 E [USC00465875], Charmco, WV
- (16) BLUESTONE LAKE [USC00460939], Hinton, WV
- (17) ATHENS [USC00460355], Athens, WV

Influencing water features

There are typically no water features associated with this site , except perhaps a low water table or runnelling.

Soil features

Representative soils include: Albrights, Belmont, Blackthorn, Blairton, Brinkerton Variant, Brownsville, Buchanan, Cavode, Clarksburg, Cookport, Ernest, Germania, Guyandotte, Highsplint, Jefferson, Kedron, Laidig, Layland, Macove, Meckesville, Nicholson, Oriskany, Pineville, Pipestem, Portville, Sees, Shelocta, Shouns, Tygart.

Table 4. Representative soil features

Parent material	(1) Colluvium
Surface texture	(1) Silt loam (2) Stony silt loam (3) Silty clay loam (4) Gravelly loam
Drainage class	Somewhat poorly drained to somewhat excessively drained
Permeability class	Very slow to moderate
Soil depth	50 – 180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	0 – 100 %
Available water capacity (Depth not specified)	7.62 – 17.78 cm
Soil reaction (1:1 water) (Depth not specified)	3.5 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	0 – 50 %
Subsurface fragment volume >3" (Depth not specified)	0 – 70 %

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 Description](http://www.landfire.gov/index.php:Vegetation%20Description)

A diverse closed-canopy forest with dominant species including:beech (*Fagus grandifolia*), tulip-poplar (*Liriodendron tulipifera*), American basswood (*Tilia americana* var. *heterophylla*), sugar maple (*Acer saccharum*), yellow buckeye (*Aesculus flava*), *Magnolia acuminata*, and *Juglans nigra*, red oak (*Quercus rubra*), white oak (*Q. alba*) and formerly American chestnut (*Castanea dentata*) (Braun 1950, Muller 1982). The oak component tends to grade from white oaks in the southern areas to red and black oaks in the northern geographic range of this forest type. *Tsuga canadensis* may be a minor component of some stands. Trees may grow very large in undisturbed areas. In the northern areas, both white (*Fraxinus americana*) and green ash (*Fraxinus pennsylvanica*) can be up to 10-15% of forest type (C. Emanuel, personal communication). This forest type developed primarily on mesic, sheltered landscapes positions (e.g., lower slopes, coves, ravines) but also occurred on some dry-mesic slopes, where presumably fire was infrequent (Wade et al. 2000).

Adjacency or Identification Concerns

Mapping mixed mesophytic forests would likely focus on specific topographic positions, such as coves, valley bottoms typically v-shaped (excluding broad u-shaped floodplains), lower north and east facing slopes; sometimes west and south facing lower slopes where moisture permits; wet-mesic to mesic conditions on the landscape; rich fertile conditions/sites; shaded topographic positions (Nowacki personal communication). On side slopes, mixed mesophytic forest interbraid with oak-hickory forests, with mixed-mesophytic occurring in v-notches and coves (drainages) and oak-hickory on interfluves.

Uncharacteristic types (structure/composition/etc.) that may frequently occur today in this BpS include:non-native invasive species (plants, animals, insects, pathogens, etc.), deer herbivory (limiting species composition and structure), and historical fire suppression.

This forest type grades into Northeastern Interior Dry-Mesic Oak Forest (1303) - where this forest type grades into northern sites when soils are drier (shallower soils, sandier parent material), and as elevation is increased. In contrast the South-Central Interior Mesophytic Forest (1320) has gentler slopes with soils featuring a higher water holding capacity.

Issues or Problems

Though Küchler (1964) mapped and described this region as mixed-mesophytic, witness tree data (from early land surveys) and studies of old-growth forests suggest that mixed-oak forests were more abundant than mixed-mesophytic forests in many areas prior to European settlement (Beatley 1959, McCarthy et al. 1987, Abrams et al. 1995, Dyer 2001, McCarthy et al. 2001, Rentch et al. 2003). Delineating the potential boundaries of 'mixed-mesophytic' forest type today should recognize that this boundary is influenced by human management interactions:historic logging and high-grading, the absence of fire, deer populations (herbivory), and non-native invasive species (plants, animals, insects and disease).

Native Uncharacteristic Conditions

Tree of Heaven (*Ailanthus altissima*) is a significant invader in these sites, due to its ability to persist in fairly intact canopy as well as its high water demand (K. Brown, personal communication).

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 (%)
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Table 6. Community 1.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 1.2 forest overstory composition

Common Name	Symbol	Scientific Name	Nativity	Height M	Canopy Cover (%)	Diameter Cm	Basal Area (square M/hectare)
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Table 8. Community 1.2 forest understory composition

Common Name	Symbol	Scientific Name	Nativity	Height (m)	Canopy Cover (%)
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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

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Contributors

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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	08/20/2026
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):

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:

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

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

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

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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