

Ecological site F140XY021NY

Dry Outwash

Last updated: 10/01/2024
Accessed: 09/21/2026

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): 140X–Glaciated Allegheny Plateau and Catskill Mountains

This area is primarily in the Southern New York Section of the Appalachian Plateaus Province of the Appalachian Highlands. The top of the dissected plateau in this MLRA is broad and is nearly level to moderately sloping. The narrow valleys have steep walls and smooth floors. The Catskills in the east have steep slopes. Elevation is typically 650 to 1,000 feet on valley floors; 1,650 to 2,000 feet on the plateau surface; and 3,600 feet or more in parts of the Catskills. The average annual precipitation in most of this area is 30 to 45 inches. Rainfall occurs as high-intensity, convective thunderstorms during the summer, but most of the precipitation in this area occurs as snow. The average annual temperature is 40 to 50 degrees F. The dominant soil order in this MLRA is Inceptisols. The soils in the area dominantly have a mesic soil temperature regime, an aquic or udic soil moisture regime, and mixed mineralogy. Frigid soils are found within the higher elevations. This area supports forest vegetation, particularly hardwood species. Beech-birch-maple and elm-ash-red maple are the potential forest types. The extent of oak species increases from east to west, particularly in areas of shallow and dry soils. In some areas conifers, such as white pine, are important. Aspen, hemlock, northern white-cedar, and black ash grow on the wetter soils. In some parts of the area, sugar maple has potential economic significance. Some of the major wildlife species in this area are white-tailed deer, cottontail, turkey, pheasant, and grouse.

Classification relationships

USDA NRCS: LRR: R - Northeastern Forage and Forest Region MLRA 140 - Glaciated Allegheny Plateau and Catskills Mountains NY
Natural Heritage Program Plant Community Classification: Appalachian Oak-Pine Forest PA Natural Heritage Program Plant Community Classification: Dry oak - heath forest Pitch pine - heath woodland International Vegetation Classification Associations: Eastern White Pine - (Northern Red Oak, Black Oak) - American Beech Forest (CEGL006293) others? NatureServe Ecological Systems: Laurentian-Acadian Pine-Hemlock-Hardwood Forest (CES201.563) Northeastern Interior Dry-Mesic Oak Forest (CES202.592)

Ecological site concept

Landform/Landscape Position: The site occurs on outwash plains, terraces, moraines, kames, and eskers . Slopes range from 0 to 60 percent. Soils: The soils consists of very deep, well to somewhat excessively drained, gravelly soils that formed in glacialfluvial material. Representative soils are Tunkhannock, Chenango, Wyoming, and Allard. Vegetation: The reference community is oak-pine forest/woodland characterized by black oak, chestnut oak, eastern white pine, pitch pine, sassafras, black birch, American beech, witch-hazel, black huckleberry, lowbush blueberry, maple-leaved viburnum, and Pennsylvania sedge.

Associated sites

F140XY022NY	Moist Outwash
F140XY018NY	Moist Lake Plain

Similar sites

F140XY013PA	High Floodplain
F140XY014NY	Low Floodplain

Table 1. Dominant plant species

Tree	(1) <i>Quercus velutina</i> (2) <i>Pinus strobus</i>
Shrub	(1) <i>Gaylussacia baccata</i> (2) <i>Vaccinium angustifolium</i>
Herbaceous	(1) <i>Carex pensylvanica</i> (2) <i>Aralia nudicaulis</i>

Physiographic features

The site occurs on outwash plains, terraces, moraines, kames, and eskers . Slopes range from 0 to 60 percent.

Table 2. Representative physiographic features

Landforms	(1) Lake plain > Outwash plain (2) Mountains > Terrace (3) Outwash plain > Valley train (4) River valley > Stream terrace (5) Upland > Alluvial fan (6) Valley > Delta (7) Lake plain (8) Outwash terrace
Runoff class	Negligible to medium
Flooding frequency	None to occasional
Ponding frequency	None
Elevation	20 – 750 m
Slope	0 – 60 %

Water table depth	90 – 180 cm
Aspect	Aspect is not a significant factor

Climatic features

The Koppen-Geiger climate classification of the area in which this MLRA occurs is Dfb, Warm-summer humid continental. Mean annual precipitation is 43 inches and evenly distributed throughout the year. Rainfall occurs as high-intensity, convective thunderstorms in the summer. However, snow comprises most of the precipitation in this area. Average frost-free and freeze-free days are 122 and 153, respectively, with the coldest temperatures and the shortest frost-free periods occurring in the high-elevation areas in the eastern part of the MLRA.

Table 3 Representative climatic features

Frost-free period (characteristic range)	110-130 days
Freeze-free period (characteristic range)	140-170 days
Precipitation total (characteristic range)	970-1,250 mm
Frost-free period (actual range)	100-140 days
Freeze-free period (actual range)	140-170 days
Precipitation total (actual range)	910-1,300 mm
Frost-free period (average)	120 days
Freeze-free period (average)	150 days
Precipitation total (average)	1,090 mm

- (1) BINGHAMTON [USW00004725], Johnson City, NY
- (2) STROUDSBURG [USC00368596], East Stroudsburg, PA
- (3) TOWANDA 1 S [USC00368905], Towanda, PA
- (4) MONTROSE [USC00365915], Montrose, PA
- (5) CORNING [USC00301787], Corning, NY
- (6) ROCK HILL 3 SW [USC00307210], Rock Hill, NY
- (7) CANTON [USC00361212], Canton, PA

Influencing water features

NONE

Wetland description

NONE

Soil features

The soils consists of very deep, well to somewhat excessively drained, gravelly soils that formed in glacialfluvial material. Representative soils are Allard, Alton, Arkport, Chenango, Colonie, Conotton, Haven, Hoosic, Howard, Plainfield, Riverhead, Tunkhannock, and Wyoming.

Table 4. Representative soil features

Parent material	(1) Glaciofluvial deposits – shale and siltstone (2) Glaciofluvial deposits – sandstone (3) Alluvium – sedimentary rock (4) Eolian deposits – limestone (5) Glaciolacustrine deposits (6) Outwash
Surface texture	(1) Gravelly loam (2) Very gravelly sandy loam (3) Very fine sandy loam (4) Fine sandy loam (5) Silt loam (6) Gravelly fine sandy loam (7) Gravelly sandy loam (8) Gravelly loam (9) Channery loam (10) Channery silt loam (11) Fine gravelly sandy loam (12) Gravelly silt loam (13) Sandy loam (14) Loamy fine sand (15) Cobbly loam (16) Cobbly sandy loam (17) Very cobbly sandy loam

Family particle size	(1) Loamy-skeletal (2) Coarse-loamy (3) Coarse-loamy over sandy or sandy-skeletal (4) Coarse-silty over sandy or sandy-skeletal (5) Sandy-skeletal
Drainage class	Well drained to excessively drained
Permeability class	Moderately slow to rapid
Depth to restrictive layer	90 – 180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	0 – 10 %
Available water capacity (Depth not specified)	5.08 – 17.78 cm
Soil reaction (1:1 water) (Depth not specified)	3.5 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	0 – 60 %
Subsurface fragment volume >3" (Depth not specified)	0 – 50 %

Ecological dynamics

The reference community is oak-pine forest/woodland characterized by black oak, chestnut oak, eastern white pine, pitch pine, sassafras, black birch, American beech, witch-hazel, black huckleberry, lowbush blueberry, mountain laurel, maple-leaved viburnum, and Pennsylvania sedge.

Disturbances or threats to these forests and woodlands include fragmentation, invasive species, over-browsing by deer, fire suppression, insects, and air pollution (New York Natural Heritage Program, 2020).

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 1.1 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 7. Community 1.1 forest understory composition

Common Name	Symbol	Scientific Name	Nativity	Height (m)	Canopy Cover (%)
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Table 8. Community 1.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 9. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 10. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 11. Community 3.1 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 12. Community 3.1 forest understory composition

Common Name	Symbol	Scientific Name	Nativity	Height (m)	Canopy Cover (%)
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Table 13. Community 4.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 14. Community 4.2 plant community composition

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

Site Development and Testing Plan: Future work to validate the vegetation information in this provisional ecological site description is needed. This will include field activities to collect low and medium intensity sampling and analysis of that data. Field reviews should be done by soil scientists and vegetation specialists. A final field review, peer review, quality control, and quality assurance reviews of the ESD will be needed to produce the final approved level document. Reviews of the project plan are to be conducted by the Ecological Site Technical Team.

Other references

New York Natural Heritage Program. 2020. Online Conservation Guide for Appalachian oak-pine forest. Available from: <https://guides.nynhp.org/appalachian-oak-pine-forest/>. Accessed January 21, 2020.

Zimmerman, E., T. Davis, G. Podniesinski, M. Furedi, J. McPherson, S. Seymour, B. Eichelberger, N. Dewar, J. Wagner, and J. Fike (editors). 2012. Terrestrial and Palustrine Plant Communities of Pennsylvania, 2nd Edition. Pennsylvania Natural Heritage Program, Pennsylvania Department of Conservation and Natural Resources, Harrisburg, Pennsylvania.

Contributors

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Approval

Greg Schmidt, 10/01/2024

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	05/20/2020
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:

17. Perennial plant reproductive capability:
