Ecological site F140XY015NY
Wet Low Floodplain

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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): 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:
Floodplain Forest

PA Natural Heritage Program Plant Community Classification:
Silver Maple Floodplain Forest

International Vegetation Classification Associations:
Silver Maple Floodplain Bottom Forest (Sensitive Fern Type) (CEGL006176)

NatureServe Ecological Systems
Central Appalachian River Floodplain (CES202.608)

Ecological site concept

Landform/Landscape Position:
The site occurs on floodplains. Slopes range from 0 to 3 percent.

Soils:
The soils consists of very deep, poorly drained, fine-silty (Wayland) and coarse-loamy (Wyalusing) soils formed in recent alluvium.

Vegetation:
The reference community is dominated silver maple but other canopy trees that may be present are red maple, black willow, river birch, and American elm. Shrubs and herbs include spicebush, dogwoods, sensitive fern, jewelweed,false nettle, and numerous sedges.

Table 1. Dominant plant species

Tree	(1) *Acer saccharinum* (2) *Ulmus americana*
Shrub	(1) *Cornus amomum* (2) *Lindera benzoin*
Herbaceous	(1) *Boehmeria cylindrica* (2) *Onoclea sensibilis*

Physiographic features

The site occurs on floodplains. Slopes range from 0 to 3 percent. Flooding is frequent.

Table 2. Representative physiographic features

Landforms	(1) Valley > Flood plain
Flooding frequency	Frequent
Slope	0–3%

Table 3. Representative physiographic features (actual ranges)

Flooding frequency	Not specified
Slope	0–6%

Climatic features

Mean annual precipitation is 43 inches and evenly distributed throughout the year. Most of the rainfall occurs as high intensity, convective thunderstorms during the summer. Snowfall is common from late in autumn to early spring. Average frost-free and freeze-free days are 122 and 153, respectively.

Table 4. Representative climatic features

Frost-free period (characteristic range)	110-134 days
Freeze-free period (characteristic range)	136-168 days
Precipitation total (characteristic range)	965-1,245 mm
Frost-free period (actual range)	101-136 days
Freeze-free period (actual range)	136-168 days
Precipitation total (actual range)	914-1,295 mm
Frost-free period (average)	122 days
Freeze-free period (average)	154 days

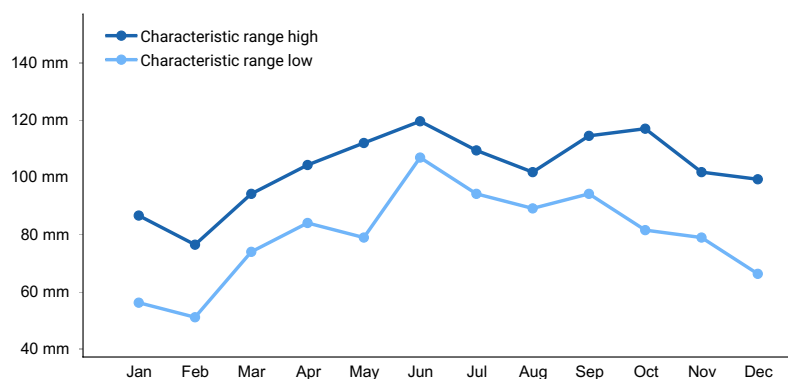| Precipitation total (average)	1,092 mm

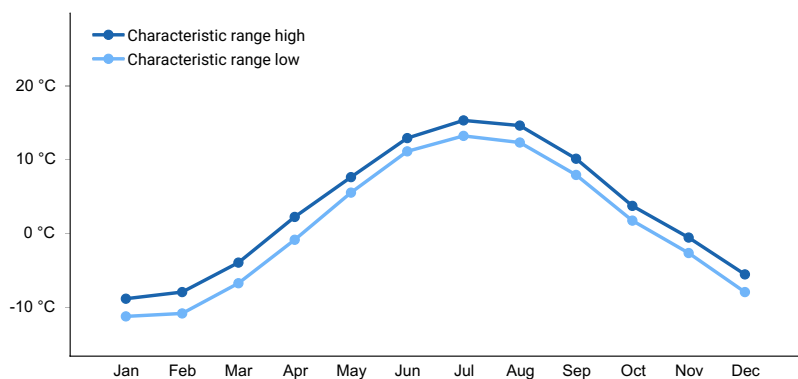Figure 1. Monthly precipitation range

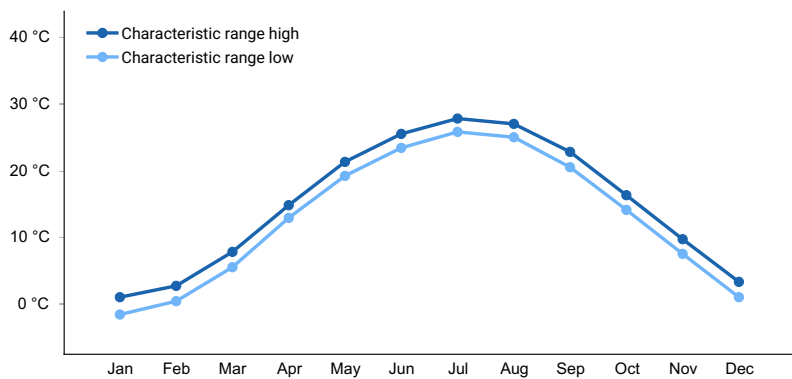Figure 2. Monthly minimum temperature range
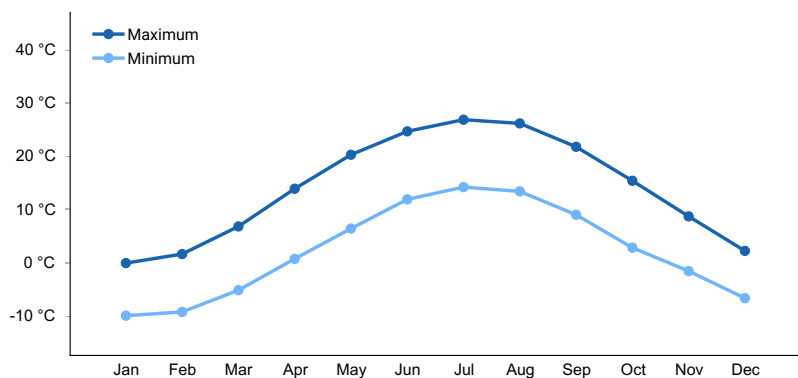

Figure 3. Monthly maximum temperature range

Figure 4. Monthly average minimum and maximum temperature
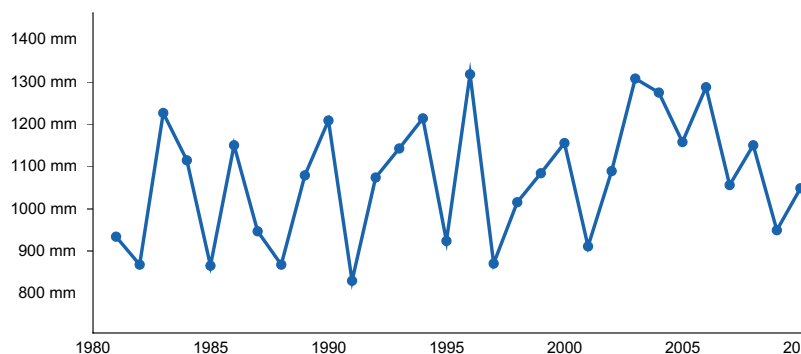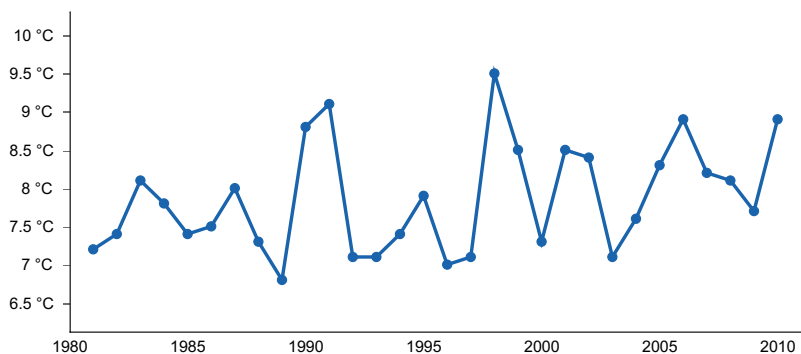
Figure 5. Annual precipitation pattern

Figure 6. Annual average temperature pattern

Climate stations used

- (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

Poorly drained
Water is removed so slowly that the soil is wet at shallow depths periodically during the growing season or remains wet for long periods. Internal free water occurrence is shallow or very shallow and common or persistent. Free water is commonly at or near the surface long enough during the growing season that most mesophytic crops cannot be grown, unless the soil is artificially drained. The soil, however, is not continuously wet directly below plow depth. Free water at shallow depth is common. The water table is commonly the result of low or very low saturated hydraulic conductivity, nearly continuous rainfall, or a combination of these.

Soil features

The soils consists of very deep, poorly drained, fine-silty (Wayland) and coarse-loamy (Wyalusing) soils formed in recent alluvium. Mesic soil temperature regime.

Table 5. Representative soil features

Parent material	(1) Alluvium–sedimentary rock
Surface texture	(1) Silt loam
Drainage class	Poorly drained

Permeability class	Slow to very slow
Available water capacity (Depth not specified)	Not specified
Soil reaction (1:1 water) (Depth not specified)	5.1–8.4
Subsurface fragment volume <=3" (Depth not specified)	Not specified

**Table 6. Representative soil features (actual values)**

| Drainage class	Poorly drained to very poorly drained
Permeability class	Not specified
Available water capacity (Depth not specified)	17.78–22.86 cm
Soil reaction (1:1 water) (Depth not specified)	Not specified
Subsurface fragment volume <=3" (Depth not specified)	0–10%

Ecological dynamics

The reference community is dominated silver maple but other canopy trees that may be present are red maple, black willow, river birch, and American elm. Shrubs and herbs include spicebush, dogwoods, sensitive fern, jewelweed, false nettle, and numerous sedges.
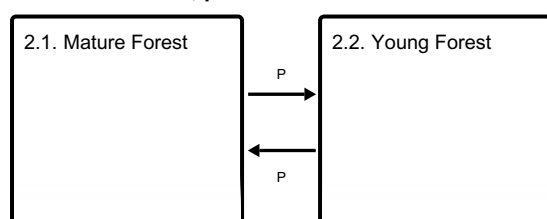
State and transition model

Ecosystem states
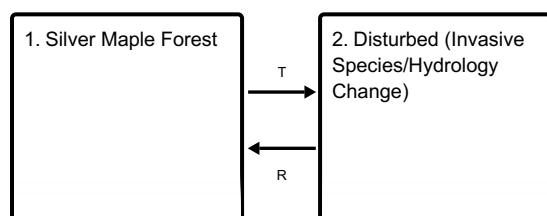
State 1 submodel, plant communities
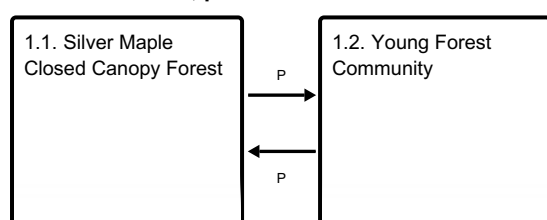
State 2 submodel, plant communities

State 1
Silver Maple Forest

Reference state. Minimally managed.

Community 1.1
Silver Maple Closed Canopy Forest

Other trees present: red maple, American elm, black willow.

Dominant plant species

- silver maple (*Acer saccharinum*), tree

Community 1.2
Young Forest Community

Black willow, red maple common with a more open canopy. Herbaceous plants more abundant.

Pathway P
Community 1.1 to 1.2

Natural disturbances such as flooding, wind, ice storm, insects.

Pathway P
Community 1.2 to 1.1

Time/succession

State 2
Disturbed (Invasive Species/Hydrology Change)

Highly disturbed forest resulting from changes in hydrology and/or presence of invasive species.

Community 2.1
Mature Forest

Invasive species present

Community 2.2
Young Forest

Invasive species present

Pathway P
Community 2.1 to 2.2

Disturbance: Flooding, wind, ice storms, insects.

Pathway P
Community 2.2 to 2.1

Time/succession

Transition T
State 1 to 2

Establishment of invasive plants. Changes to hydrology (drainage, diversions, roads,) may also been a driver of change.

Restoration pathway R

State 2 to 1

Conservation practices

Invasive Plant Species Control

Additional community tables

Table 7. Community 1.1 forest overstory composition

Common Name	Symbol	Scientific Name	Nativity	Height (M)	Canopy Cover (%)	Diameter (Cm)	Basal Area (Square M/Hectare)
Tree							
silver maple	ACSA2	*Acer saccharinum*	Native	–	–	–	–
American elm	ULAM	*Ulmus americana*	Native	–	–	–	–
black willow	SANI	*Salix nigra*	Native	–	–	–	–
red maple	ACRU	*Acer rubrum*	Native	–	–	–	–

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

Edinger, G.J., Evans, D.J., Gebauer, S., Howard, T.G., Hunt, D.M., and A.M. Olivero, A.M. (eds.). 2014. Ecological Communities of New York State, Second Edition: A revised and expanded edition of Carol Reschke's Ecological Communities of New York State. New York Natural Heritage Program, New York State Department of Environmental Conservation, Albany, NY.

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.

Approval

Nels Barrett, 5/20/2020

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	05/18/2024
Approved by	Nels Barrett

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:**