Ecological site F101XY002NY
Low Floodplain

Last updated: 10/03/2024
Accessed: 05/11/2025

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): 101X–Ontario-Erie Plain and Finger Lakes Region

Most of the MLRA is a nearly level to rolling plain. Low remnant beach ridges are commonly interspersed with a relatively level lake plain in the northern part of the area. Drumlins (long, narrow, steep-sided, cigar shaped hills) are prominent in an east-west belt in the center of the area. The Finger Lakes Region consists of a gently sloping to rolling till plain. Elevation increases gradually from the shores of Lake Ontario and Lake Oneida to the Allegheny Plateau, the southern border of the area. The bedrock underlying this area consists of alternating beds of limestone, dolomite, sandstone, and shale of Ordovician to Devonian age. Most of the surface of the area is covered with glacial till or lake sediments. The texture of the lake sediments is silt, loam, or sand. Ancient beaches, formed at different lake levels, form ridges along the shoreline of Lake Erie and Lake Ontario. Stratified drift (eskers and kames) and glacial outwash deposits are in many of the valleys. A large drumlin field occurs in the Finger Lakes Region.

Classification relationships

USDA-NRCS (USDA, 2006):
Land Resource Region (LRR): L — Lake States Fruit, Truck Crop, and Dairy Region
Major Land Resource Area (MLRA): 101— Ontario-Erie Plain and Finger Lakes Region
USDA-FS (Cleland et al., 2007)
Province: 211 — Northeastern Mixed Forest Province (in part)
Section: 211J — Mohawk Valley (in part)
Subsection: 211Jd — Mohawk Valley
Province: 222 — Midwest Broadleaf Forest Province (in part)
Section: 222I — Erie and Ontario Lake Plain
Subsection: 222Ia — Lake Erie Plain
222Ib — Erie-Ontario Lake Plain
222Ic — Eastern Ontario Till Plain
222Id — Cattaraugus Finger Lakes Moraine and Hills
222Ie — Eastern Ontario Lake Plain

Ecological site concept

Landform/Landscape Position:
The site occurs on flood plains adjacent to low gradient streams and rivers. Slopes range from 0 to 3 percent.

Soils:
The site consists of very deep, moderately well drained or somewhat poorly drained soils that have formed in recent alluvium derived predominantly from siltstone, shale, and limestone. Representative soils are Hemlock, Oatka, Teel, (Eel), Wakeville, and Weaver.

Vegetation:
Silver Maple - (Eastern Cottonwood) / Ostrich Fern - Canadian Woodnettle Floodplain Forest
Acer saccharinum - (Populus deltoides) / Matteuccia struthiopteris - Laportea canadensis Floodplain Forest

Associated sites

F101XY003NY	Low Floodplain Depression
	Low Floodplain Depressions are low-lying features in the floodplain landscape.

Similar sites

F101XY001NY	High Floodplain
	High Floodplain sites that transition to Low floodplain sites may be similar.

Table 1. Dominant plant species

Tree	(1) *Acer saccharinum* (2) *Populus deltoides*
Shrub	Not specified
Herbaceous	(1) *Matteuccia struthiopteris* (2) *Laportea canadensis*

Physiographic features

The site occurs on flood plains adjacent to low gradient streams and rivers. Slopes range from 0 to 3 percent.
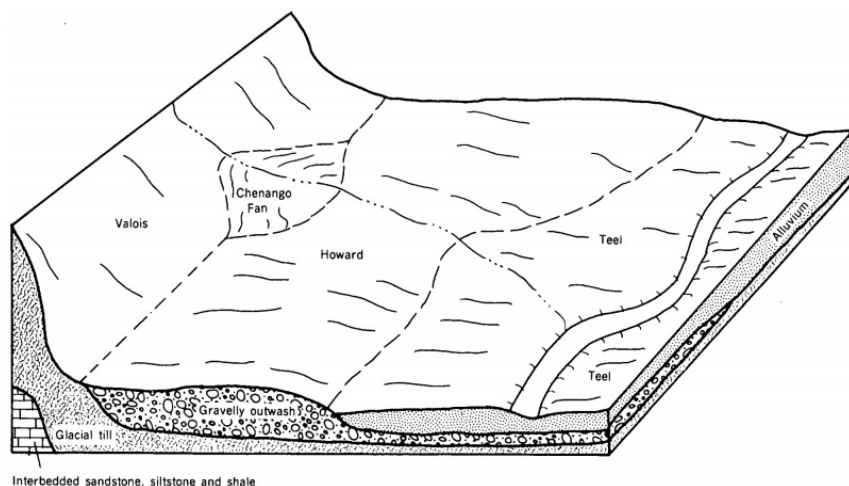

Figure 1. Low Flood Plain (Teel)

Table 2. Representative physiographic features

Landforms	(1) Valley > Flood plain
Runoff class	Low
Flooding frequency	Rare to occasional
Ponding frequency	None to occasional
Elevation	279–2,998 ft
Slope	0–8%
Water table depth	0–48 in
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. Rainfall occurs as high-intensity, convective thunderstorms in the summer.
However, snow comprises most of the precipitation in this area. The frost-free-free period in this area averages 165
days and ranges from 130 to 200 days, 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)	136-140 days
Freeze-free period (characteristic range)	173-186 days
Precipitation total (characteristic range)	37-42 in
Frost-free period (actual range)	135-140 days
Freeze-free period (actual range)	167-187 days
Precipitation total (actual range)	35-42 in
Frost-free period (average)	138 days
Freeze-free period (average)	179 days
Precipitation total (average)	39 in
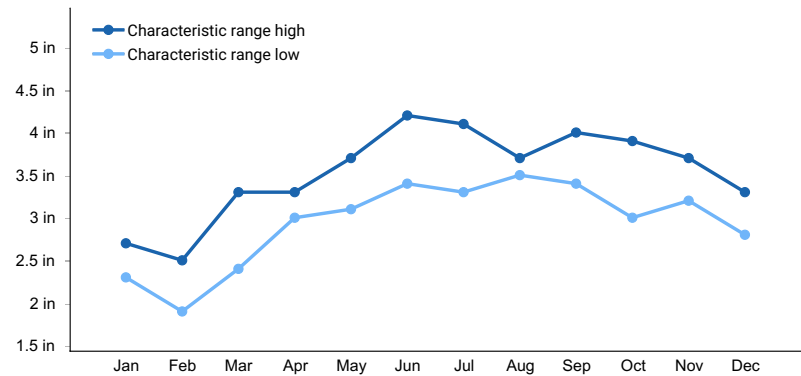
Figure 2. Monthly precipitation range
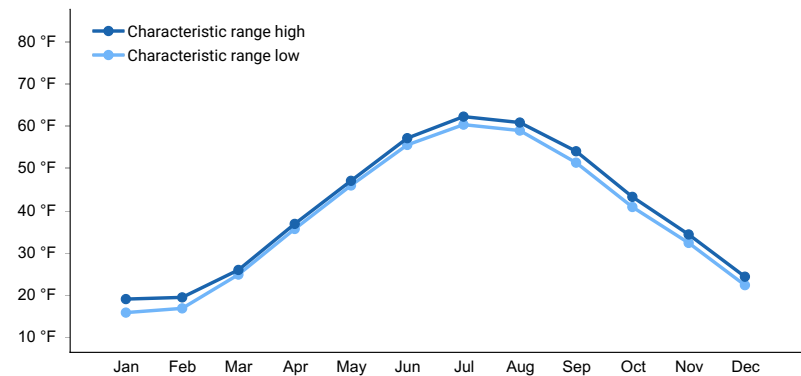
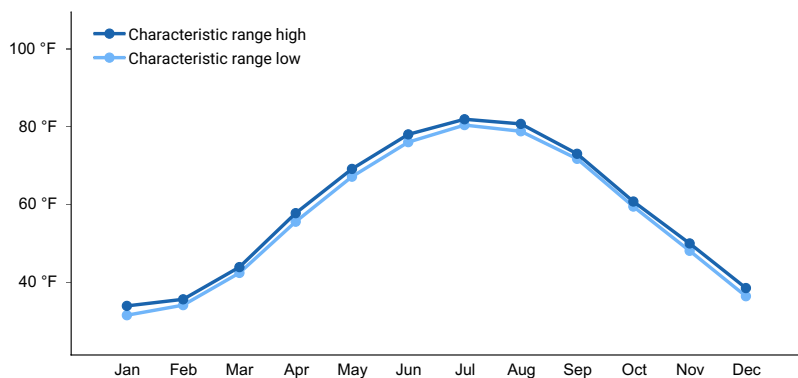**Figure 3. Monthly minimum temperature range**

Figure 4. Monthly maximum temperature range
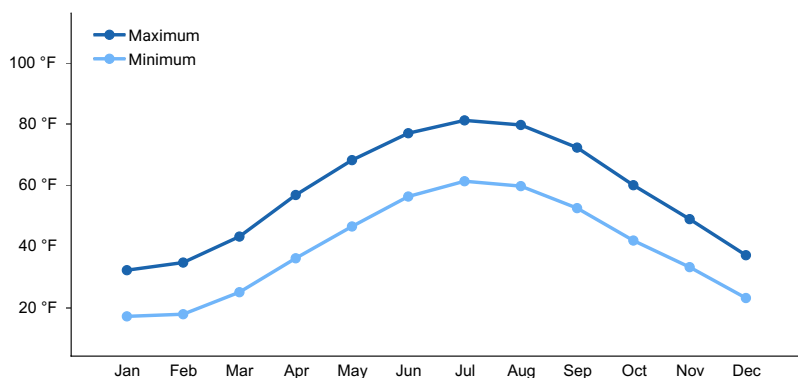

Figure 5. Monthly average minimum and maximum temperature
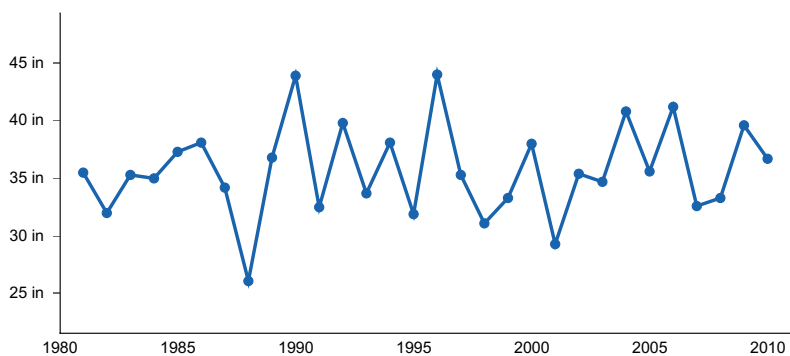

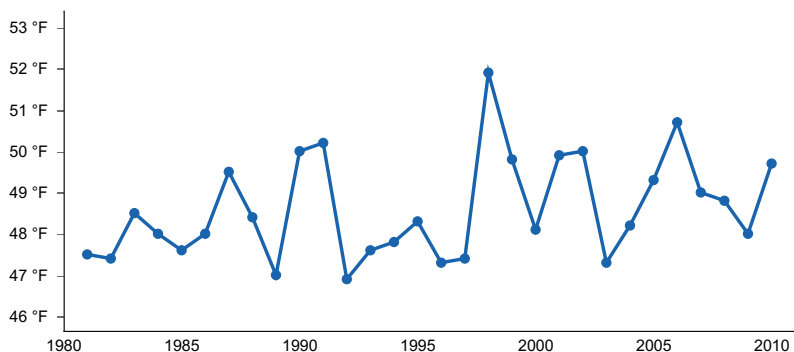**Figure 6. Annual precipitation pattern**

Figure 7. Annual average temperature pattern

Climate stations used

- (1) SUNY ESF SYRACUSE [USC00308386], Syracuse, NY
- (2) DELANSON 2NE [USC00302031], Delanson, NY
- (3) ROCHESTER GTR INTL AP [USW00014768], Rochester, NY

Influencing water features

As a depositional feature bordering rivers and streams, floodplains are subject to inundation under flood stage conditions (unless artificially protected).

Soil features

The site consists of very deep, moderately well drained or somewhat poorly drained, coarse-silty soils that have formed in recent alluvium along streams. Representative soils are Hemlock, Oatka, Teel, (Eel), Wakeville, and Weaver.

Table 4. Representative soil features

Parent material	(1) Alluvium–shale and siltstone (2) Alluvium–limestone (3) Alluvium–sandstone
Surface texture	(1) Silt loam (2) Silty clay loam
Family particle size	(1) Fine-silty (2) Fine (3) Coarse-silty (4) Coarse-loamy (5) Fine-loamy (6) Loamy
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Very slow to moderately slow
Depth to restrictive layer	72 in
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (Depth not specified)	2–8 in
Soil reaction (1:1 water) (Depth not specified)	4.5–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–45%
Subsurface fragment volume >3" (Depth not specified)	0–25%

Ecological dynamics

The reference community coincides with Maple - (Eastern Cottonwood) / Ostrich Fern - Canadian Woodnettle Floodplain Forest (CEGL006147). Other species include green ash, American sycamore, American elm, spicebush, dogwoods, sensitive fern, jewelweed, and numerous sedges.

The frequency, duration, and timing of floods is the primary natural disturbance affecting species composition. Flood plain forests are commonly found in early to mid-successional stages because of the dynamic nature of floodplains (Thompson and Sorenson 2000). Young alluvial forests are typically dominated by eastern cottonwood along major rivers or American sycamore in small to medium sized rivers. River types such as large, low gradient and small-medium low and high gradient rivers differ in hydrologic regime and fluvial geomorphology and consequently have different community composition (Marks et al. 2011).

Invasive exotic plants are a significant threat to the community since many can successfully displace native species.

Common invasive exotic plants are Japanese barberry, Norway maple, Oriental bittersweet, European bush honeysuckle, garlic mustard, and Japanese stiltgrass.

State and transition model

Ecosystem states

				States 2 and 5 (additional transitions)

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┌──────────────────────┐              ┌──────────────────────┐         ┌──────────────────────┐            ┌──────────────────────┐
│ 1. Reference - Mixed │    T1A       │ 2. Managed Timber   │         │ 2. Managed Timber   │    R2B     │ 5. Restored and/or   │
│ Hardwood Forest      │ ───────────► │ Forest              │         │ Forest              │ ─────────► │ Minimally Managed    │
│                      │ ◄─────────── │                     │         │                     │            │ Forest               │
│                      │    R2A       │                     │         │                     │            │                      │
└──────────────────────┘              └──────────────────────┘         └──────────────────────┘            └──────────────────────┘
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Transitions: T1A, R2A, T1C, T2A, T1B, R3A, T3A, T4A, T5A

- 3. Invaded
- 4. Pastureland
- 5. Restored and/or Minimally Managed Forest

State 1 submodel, plant communities

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┌──────────────────────┐              ┌──────────────────────┐
│ 1.1. Old Growth Mixed│    P1.1      │ 1.2. Young Forest    │
│ Hardwood Forest      │ ───────────► │                      │
│                      │ ◄─────────── │                      │
│                      │    P1.2      │                      │
└──────────────────────┘              └──────────────────────┘
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State 2 submodel, plant communities

2.1. Timber Managed Forest

State 3 submodel, plant communities

3.1. Forest with invasive species

State 4 submodel, plant communities

4.1. Introduced grasses and forbs for grazing, hay production, or wildlife	→ P4.1 →	4.2. Woody plant encroachment
	← P4.2 ←	
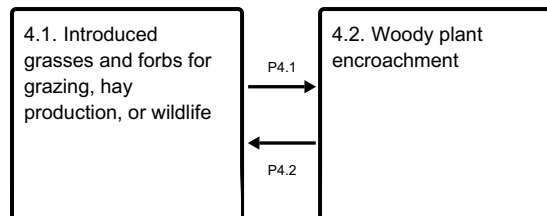
State 1
Reference - Mixed Hardwood Forest

The reference community coincides with Maple - (Eastern Cottonwood) / Ostrich Fern - Canadian Woodnettle Floodplain Forest (CEGL006147). Other species include green ash, American sycamore, American elm, spicebush, dogwoods, sensitive fern, jewelweed, and numerous sedges.
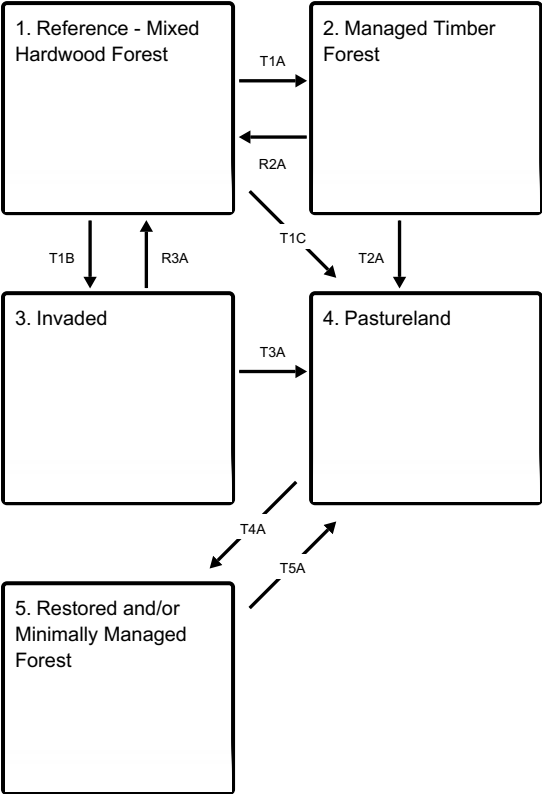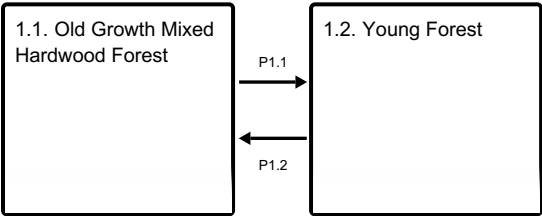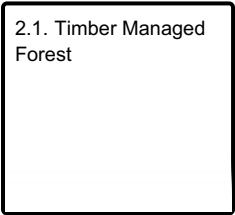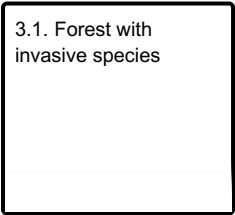
Characteristics and indicators. Site was not cleared or cultivated historically.

Community 1.1
Old Growth Mixed Hardwood Forest

Mature closed canopy forest.

Community 1.2
Young Forest

Early successional forest.

Pathway P1.1
Community 1.1 to 1.2

Wind, ice storm,, insect damage.

Pathway P1.2
Community 1.2 to 1.1

Time; succession

State 2
Managed Timber Forest

Removal of trees of commercial value. Invasive species may be present.

Community 2.1
Timber Managed Forest

Forest managed for timber, primarily oak species. Depending on type of management birch, beech, and maple may dominate following commercial timber harvest.

State 3
Invaded

Invasive species abundant. Minimally managed forest.

Community 3.1
Forest with invasive species

Non-native and invasive species present (Japanese barberry, multiflora rose, bush honeysuckle, stiltgrass.

State 4
Pastureland

Site converted to pasture for livestock grazing or hay production.

Resilience management. Must be managed (grazed, mowed, etc.) to maintain pastureland.

Community 4.1
Introduced grasses and forbs for grazing, hay production, or wildlife

Community 4.2
Woody plant encroachment

Pathway P4.1
Community 4.1 to 4.2

Lack of management (mowing, grazing, prescribed fire)

Pathway P4.2
Community 4.2 to 4.1

Mowing, brush management, prescribed fire.

Conservation practices

Brush Management
Prescribed Burning

State 5
Restored and/or Minimally Managed Forest

Restored forest or second-growth forest.

Characteristics and indicators. Site was cleared and/or cultivated historically.

Transition T1A
State 1 to 2

Timber harvest.

Transition T1B
State 1 to 3

Establishment of invasive species.

Transition T1C
State 1 to 4

Land use conversion.

Conservation practices

Land Clearing

Restoration pathway R2A

State 2 to 1

Conservation practices

Forest Stand Improvement
Forest Land Management
Prescribed Forestry

Transition T2A
State 2 to 4

Land use conversion

Conservation practices

Land Clearing

Restoration pathway R2B
State 2 to 5

Forestland restoration

Restoration pathway R3A
State 3 to 1

Invasive species management/removal.

Conservation practices

Invasive Plant Species Control
Invasive Species Pest Management

Transition T3A
State 3 to 4

Land use conversion

Restoration pathway T4A
State 4 to 5

Forest land restoration

Transition T5A
State 5 to 4

Land use conversion

Additional community tables

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

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Contributors

Joshua Hibit

Approval

Greg Schmidt, 10/03/2024

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	05/21/2020
Approved by	Greg Schmidt
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:**