

Ecological site F101XY013NY

Moist Till

Last updated: 10/03/2024

Accessed: 09/23/2026

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): 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 broad plains, hills, ridges, and knolls. Slopes range from 0 to 45 percent. **Soils:** The site consists of moderately deep to very deep, moderately well drained soils formed in loamy till. Representative soils are Amenias, Appleton, Angola, Aurora, Bombay, Brockport, Burdett, Cazenovia, Conesus, Danley, Darien, Derb, Hilton, Hornell, Ira, Kendaia, *Lairdsville, Lima, Lockport, Massena, Manheim, Newstead, , Nuhi, Nunda, Ovid, Remsen, *Riga, Scriba, and Yunenyeti mapped within MLRA 101. *Lairdsville and Riga have dual drainage classes (well drained and moderately well drained). Grouped these soils with the MWD site. **Vegetation** The reference community coincides with NY natural heritage community: Maple-basswood rich mesic forest.

Associated sites

F101XY004NY	Mucky Depression Mucky Depression sites may occur in low lying areas where organic material can accumulate.
F101XY014NY	Wet Till Depression Wet Till Depression sites are lower in the landscape profile.

Similar sites

F101XY006NY	Moist Outwash Moist Outwash sites are typically more coarsely textures and less enriched.
F101XY009NY	Moist Lake Plain Moist Lake Plain sites may be considered more enriched.

Table 1. Dominant plant species

Tree	(1) <i>Acer saccharum</i> (2) <i>Tilia americana</i>
Shrub	(1) <i>Cornus alternifolia</i> (2) <i>Acer spicatum</i>
Herbaceous	(1) <i>Dryopteris marginalis</i> (2) <i>Caulophyllum thalictroides</i>

Physiographic features

The site occurs on broad plains, hills, ridges, and knolls. Slopes range from 0 to 45 percent.

Table 2. Representative physiographic features

Landforms	(1) Till plain > Till plain (2) Upland > Hill (3) Ridge (4) Knoll (5) Bench (6) Depression (7) Drainageway (8) Drumlin (9) Drumlinoid ridge (10) Reworked lake plain
Runoff class	Low to very high
Flooding frequency	None
Ponding frequency	None

Elevation	10 – 750 m
Slope	0 – 50 %
Water table depth	20 – 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. Rainfall occurs as high-intensity, convective thunderstorms in the summer. However, snow comprises most of the precipitation in this area. The frost-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)	140-140 days
Freeze-free period (characteristic range)	170-190 days
Precipitation total (characteristic range)	940-1,070 mm
Frost-free period (actual range)	140-140 days
Freeze-free period (actual range)	170-190 days
Precipitation total (actual range)	890-1,070 mm
Frost-free period (average)	140 days
Freeze-free period (average)	180 days
Precipitation total (average)	990 mm

- (1) SUNY ESF SYRACUSE [USC00308386], Syracuse, NY
- (2) DELANSON 2NE [USC00302031], Delanson, NY
- (3) ROCHESTER GTR INTL AP [USW00014768], Rochester, NY
- (4) DUNKIRK CHAUTAUQUA AP [USW00014747], Dunkirk, NY
- (5) LOCKPORT 3 S [USC00304844], Lockport, NY

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.

Wetland description

National Wetland Classification (Cowardin et al., 1979):

Palustrine, class variable, leaf morphology variable, water regime variable, chemistry modifier variable.

Soil features

The site consists of moderately deep to very deep, moderately well drained soils formed in loamy till. Representative soils are Amenias, Appleton, Angola, Aurora, Bombay, Brockport, Burdett, Cazenovia, Conesus, Danley, Darien, Derby, Hilton, Hornell, Ira, Kalurah, Kendaia, *Lairdsville, Lima, Lockport, Malone, Massena, Manheim, Manlius, Marilla, Newstead, Nuhi, Nunda, Ovid, Remsen, *Riga, Scriba, Schuyler, Tuller, and Yunenyeti mapped within MLRA 101.

*Lairdsville and Riga have dual drainage classes (well drained and moderately well drained). Grouped these soils with the MWD site.

Table 4. Representative soil features

Parent material	(1) Till – limestone, sandstone, and shale (2) Glaciolacustrine deposits – dolomite (3) Cryoturbate (4) Residuum
Surface texture	(1) Channery silt loam (2) Gravelly loam (3) Loam (4) Fine sandy loam (5) Very fine sandy loam (6) Gravelly fine sandy loam (7) Silty clay loam (8) Gravelly fine sandy loam (9) Very stony loam

Family particle size	(1) Coarse-loamy (2) Loamy (3) Fine-loamy (4) Fine (5) Fine-silty (6) Loamy-skeletal
Drainage class	Poorly drained to somewhat excessively drained
Permeability class	Very slow to slow
Depth to restrictive layer	30 – 180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	0 – 10 %
Available water capacity (Depth not specified)	2.54 – 17.78 cm
Soil reaction (1:1 water) (Depth not specified)	3.5 – 10
Subsurface fragment volume <=3" (Depth not specified)	0 – 60 %
Subsurface fragment volume >3" (Depth not specified)	0 – 40 %

Ecological dynamics

The reference coincides with Maple-Basswood Rich Mesic Forest (NY Natural Heritage Program) and International Vegetation Classification Sugar Maple – American Basswood / Blue Cohosh Forest
Acer saccharum – Tilia americana / Caulophyllum thalictroides Forest (CEGL006637)

Common trees are sugar maple, northern red oak, basswood, yellow birch, white ash, and hop hornbeam. Shrubs include witch-hazel and dogwood. Dynamics includes conversion of site into agricultural production and invasive species establishment. Disturbances include wind, ice, insects, and land clearing or timber harvest.

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 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 8. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 9. Community 4.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 10. 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

Cleland, D.T., J.A. Freeouf, J.E. Keys, G.J. Nowacki, C. Carpenter, and W.H. McNab. 2007. Ecological Subregions, Sections, and Subsections of the Conterminous United States. USDA Forest Service, General Technical Report WO-76. Washington, DC.

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.

NatureServe 2018. NatureServe Explorer: An online encyclopedia of life [web application]. Version 7.1. NatureServe, Arlington, Virginia. Available <http://explorer.natureserve.org>. (Accessed: January 2019).

USDA-NRCS [United States Department of Agriculture, Natural Resources Conservation Service] 2006. Land Resource Regions and Major land Resource Areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296.

USDA-NRCS [United States Department of Agriculture, Natural Resources Conservation Service] 2016. National Soils Information System (NASIS) [Software] Version 7.x. USDA, Kansas City, MO.

USNVC [United States National Vegetation Classification]. 2017. United States National Vegetation Classification Database, V2.01. Federal Geographic Data Committee, Vegetation Subcommittee, Washington DC. <http://usnvc.org/explore-classification/> (Accessed: 2018).

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	
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:
