

Ecological site F144AY018NY  
Moist Lake Plain

Last updated: 5/01/2019  
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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): 144A–New England and Eastern New York Upland, Southern Part

MLRA 144A: New England and Eastern New York Upland, Southern Part  
The eastern half of the eastern part of this MLRA is in the Seaboard Lowland Section of the New England Province of the Appalachian Highlands. The western half of the eastern part and the southeastern half of the western part are in the New England Upland Section of the same province and division. The northwestern half of the western part is in the Hudson Valley Section of the Valley and Ridge Province of the Appalachian Highlands. This MLRA is a very scenic area of rolling to hilly uplands that are broken by many gently sloping to level valleys that terminate in coastal lowlands. Elevation ranges from sea level to 1,000 feet (0 to 305 meters) in much of the area, but it is 2,000 feet (610 meters) on some hills. Relief is mostly about 6 to 65 feet (2 to 20 meters) in the valleys and about 80 to 330 feet (25 to 100 meters) in the uplands.  
This area has been glaciated and consists almost entirely of till plains and drumlins dissected by narrow valleys with a thin mantle of till. The southernmost boundary of the area marks the farthest southward extent of glaciation on the eastern seaboard. The river valleys and coastal plains are filled with glacial lake sediments, marine sediments, and glacial outwash. The bedrock in the eastern half of the area consists primarily of igneous and metamorphic rocks of early Paleozoic age. Granite is the most common igneous rock, and gneiss, schist, and slate are the most common metamorphic rocks. In the parts of the MLRA in northeastern Pennsylvania and in eastern and southeastern New York, Devonian- to Pennsylvanian-age sandstone, shale, and limestone bedrock is dominant. Carbonate rocks, primarily dolomite and limestone, are the dominant kinds of bedrock in the part of this MLRA in northwestern Connecticut.

Ecological site concept

This site consists of deep, moderately well-drained to somewhat poorly drained soils formed in clayey glacio-lacustrine sediments. Soils include Hudson and Reinbeck.  
The reference community is “Oak-tulip tree forest” (Edinger et al. 2014). Somewhat of a mixed mesophytic forest, the canopy dominants are red oak and tuliptree, and American beech. Shrubs include witchhazel, mapleleaf viburnum, spicebush. Characteristic ground layer includes wild geranium, trillium, jack-n-the-puplit, New York fern and wild ginger.

Table 1. Dominant plant species

Tree	(1) <i>Acer saccharum</i> (2) <i>Liriodendron tulipifera</i>
Shrub	(1) <i>Hamamelis virginiana</i>
Herbaceous	(1) <i>Geranium maculatum</i>

Physiographic features

The site occurs on nearly level to very steep on lake plains and lacustrine capped uplands and valley sides. Slope ranges from 0 through 60 percent.

Table 2. Representative physiographic features

Landforms	(1) Lake plain (2) Valley side
Slope	0–60%

Climatic features

Mean annual precipitation is 46 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 133 and 163, respectively.

Table 3. Representative climatic features

Frost-free period (average)	133 days
Freeze-free period (average)	163 days
Precipitation total (average)	1,168 mm

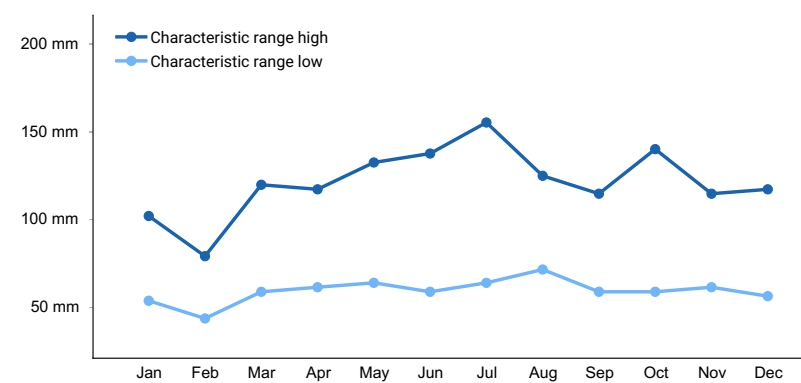


Figure 1. Monthly precipitation range

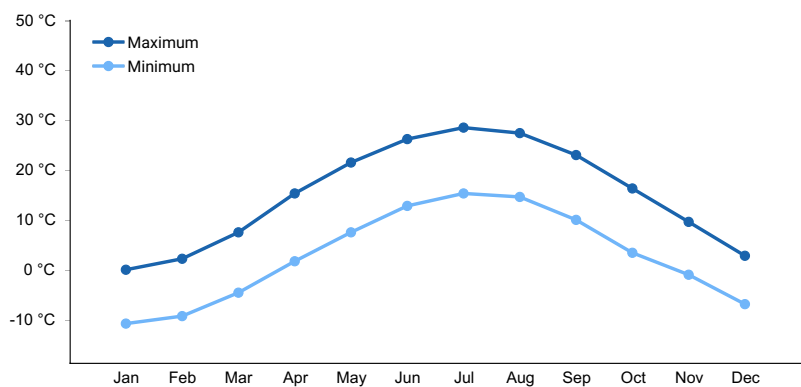
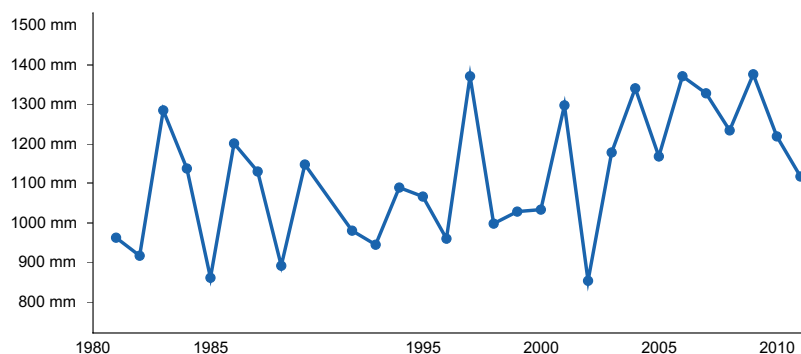


Figure 2. Monthly average minimum and maximum temperature



**Figure 3. Annual precipitation pattern**

## Climate stations used

- (1) GLOVERSVILLE [USC00303319], Gloversville, NY
- (2) HUDSON COR.FACILITY [USC00304025], Athens, NY
- (3) SARATOGA SPRINGS 4 SW [USC00307484], Saratoga Springs, NY
- (4) ALBANY AP [USW00014735], Latham, NY
- (5) RHINEBECK 4SE [USC00307035], Rhinebeck, NY

## Influencing water features

### Soil features

The site consists of very deep, moderately well and somewhat poorly drained soils formed in clayey and silty lacustrine sediments.

Representative soils are Hudson and Rhinebeck within MLRA 144A.

**Table 4. Representative soil features**

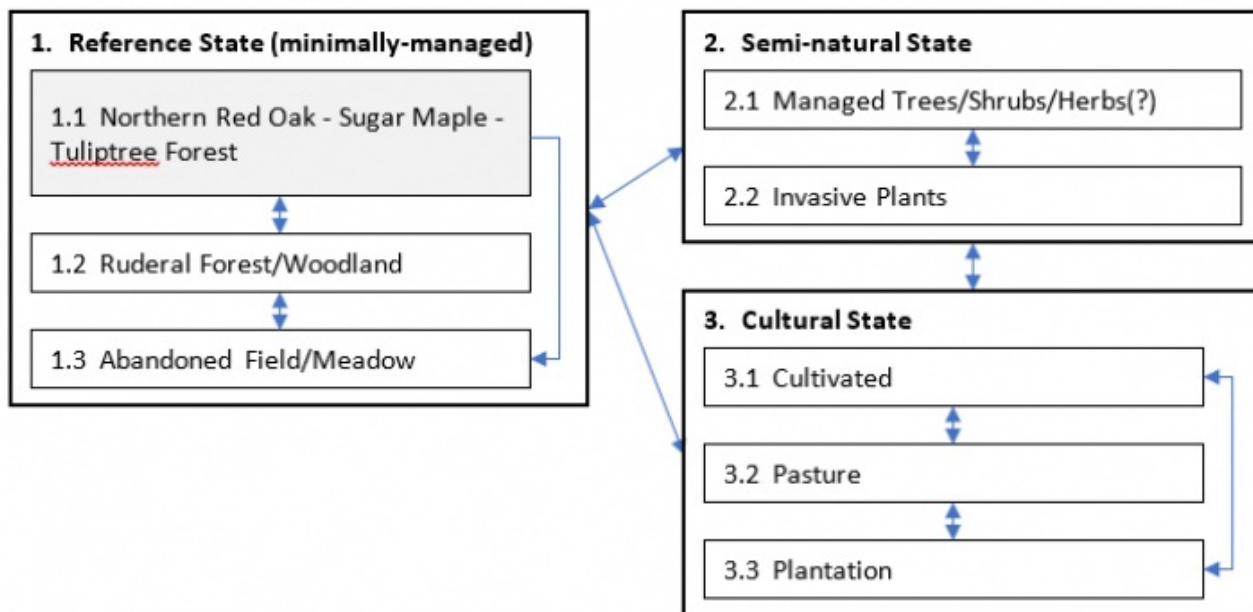
Surface texture	(1) Silt loam (2) Silty clay loam (3) Loam
Drainage class	Somewhat poorly drained to moderately well drained
Permeability class	Very slow to moderately slow
Soil depth	183 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	15.24–20.32 cm
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	5.1–8.4
Subsurface fragment volume <=3" (Depth not specified)	0–3%
Subsurface fragment volume >3" (Depth not specified)	0%

## Ecological dynamics

The reference community is “Oak-tulip tree forest” (Edinger et al. 2014). Somewhat of a mixed mesophytic forest, the canopy dominants are red oak and tuliptree, and American beech. Shrubs include witchhazel, mapleleaf viburnum, spicebush. Characteristic ground layer includes wild geranium, trillium, jack-n-the-puplit, New York fern and wild ginger.

## State and transition model

### 144AY018 – Moist Lake Plain



Transition	Drivers/practices
T1-2	Forest mgmt., Disturbance
T1-3, T2-3	Disturbance/cutting/clearing, Brush removal
R2-1, R3-1	Restoration & <u>Mgmt.</u> Forest Stand Improvement, Early Successional Habitat Development, Upland Wildlife <u>Mgmt.</u> , Invasive spp. Control, Plant establishment
T3-2	Abandonment, Plant establishment, Forest mgmt.
CP2.1-2.2	Disturbance, Invasive species establishment
CP2.2-2.1	Invasive spp. Control, Forest mgmt..
CP1.3-1.2, CP1.2-1.1	Abandonment, succession
CP3.1-3.2/3.3, CP 3.2-3.1/3.3 3.3-3.1/3.2	Changing agricultural phases
CP1.1-1.2/1.3, CP1.2-1.3,	Disturbance, Early Successional Habitat Development

## State 1

### Reference State (minimally-managed)

High Floodplain Levee

**Community 1.1**  
**Northern Red Oak - Sugar Maple - Tuliptree Forest**

**Community 1.2**  
**Ruderal Forest/Woodland**

**Community 1.3**  
**Abandoned Field/Meadow**

**Pathway CP1.1-2.1**  
**Community 1.1 to 1.2**

Disturbance

**Pathway CP1.1-1.3**  
**Community 1.1 to 1.3**

Disturbance

**Pathway CP1.2-1.1**  
**Community 1.2 to 1.1**

Abandonment, Sucession

**Pathway CP1.2-1.3**  
**Community 1.2 to 1.3**

Disturbance

**Pathway CP1.3-1.2**  
**Community 1.3 to 1.2**

Abandonment, Succession

**State 2**  
**Semi-natural State**

Floodplain forests altered by disturbance (usually w/invasive plants) or managed floodplain forests

**Community 2.1**  
**Managed Trees/Shrubs/Herbs(?)**

**Community 2.2**  
**Invasive Plants**

**Pathway CP2.1-2.2**  
**Community 2.1 to 2.2**

Disturbance, Invasive species establishment

**Pathway CP2.2-2.1**  
**Community 2.2 to 2.1**

Invasive spp. Control, Forest mgmt.

## **State 3**

### **Cultural State**

Different phase of intense land use - may be cultivated crops, pasture/hay, or plantations (including nursery crops)

#### **Community 3.1**

##### **Cultivated**

#### **Community 3.2**

##### **Pasture**

#### **Community 3.3**

##### **Plantation**

#### **Pathway CP3.1-3.2**

##### **Community 3.1 to 3.2**

Changing agricultural phases

#### **Pathway CP3.1-3.3**

##### **Community 3.1 to 3.3**

Changing agricultural phases

#### **Pathway CP3.2-3.1**

##### **Community 3.2 to 3.1**

Changing agricultural phases

#### **Pathway CP3.2-3.3**

##### **Community 3.2 to 3.3**

Changing agricultural phases

#### **Pathway CP3.3-3.1**

##### **Community 3.3 to 3.1**

Changing agricultural phases

#### **Pathway CP3.3-3.2**

##### **Community 3.3 to 3.2**

Changing agricultural phases

## **Transition T1-2**

### **State 1 to 2**

altered by human- induced Disturbance or Management

#### **Conservation practices**

Tree/Shrub Establishment
Forest Land Management
Forest stand improvement for habitat and soil quality

## Transition T1-3

### State 1 to 3

Disturbance, clearing, cutting

#### Conservation practices

Brush Management
Land Clearing
Herbaceous Weed Control

## Restoration pathway R2-1

### State 2 to 1

Plant removals, plantings, Invasive plant control, successional mgmt., forestry practices Restoration & Mgmt, Forest Stand Improvement, Early Successional Habitat Development, Upland Wildlife Mgmt, Invasive spp. Control, Plant establishment

#### Conservation practices

Brush Management
Tree/Shrub Establishment
Early Successional Habitat Development/Management
Forest Stand Improvement
Restoration and Management of Natural Ecosystems
Native Plant Community Restoration and Management
Forest Land Management
Invasive Plant Species Control

## Transition T2-3

### State 2 to 3

Land clearing, cutting

#### Conservation practices

Brush Management
Land Clearing
Herbaceous Weed Control

## Restoration pathway R3-1

### State 3 to 1

Plant removals, plantings, Invasive plant control, successional mgmt., forestry practices Restoration & Mgmt, Forest Stand Improvement, Early Successional Habitat Development, Upland Wildlife Mgmt, Invasive spp. Control, Plant establishment

#### Conservation practices

Restoration and Management of Natural Ecosystems
Native Plant Community Restoration and Management

## Transition T3-2

### State 3 to 2

Abandonment. Plant establishment, Forest mgmt.

#### Conservation practices

Tree/Shrub Establishment
Forest Stand Improvement
Forest Land Management

#### Additional community tables

#### Other references

##### 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.

#### Approval

Nels Barrett, 5/01/2019

#### 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	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

#### Indicators

1. **Number and extent of rills:**

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2. **Presence of water flow patterns:**

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3. **Number and height of erosional pedestals or terracettes:**

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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):**
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14. **Average percent litter cover (%) and depth ( in):**
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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-**

production):

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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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