

## Ecological site F144AY039NY Semi-Rich Wet Till Depressions

Accessed: 04/18/2024

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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

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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

The reference community coincides a nutrient rich Red maple – black ash / bristly buttercup forested wetland occasionally with northern white cedar, tamarack, white pine with shrubs like alderleaf buckthorn (Metzler and Barrett 2006) and a Red maple – hardwood swamp (Edinger et al. 2014). The tree canopy is dominated by red maple with other hardwoods included such as black ash, yellow birch, swamp white oak, American elm, butternut, bitternut hickory. A dense shrub layer can exist. Characteristic shrubs include winterberry, spicebush, speckled alder, redosier dogwood, southern arrowwood, and poison sumac. Herbaceous layer includes skunk cabbage, sensitive fern, royal fern, marsh fern, green false hellebore, swamp saxifrage, purple avens, and swamp thistle. Tree blow downs can be common resulting in a more open canopy in places. The site is threatened by invasive exotic plants such as Japanese barberry and glossy alder-buckthorn.

Within red maple swamps, hydro-geologic setting is a primary determinant of water regimes, water chemistry, plant community structure and floristics, and groundwater recharge and discharge relationships (Golet et al 1992).

Successional communities include woodlands, shrublands, and grasslands. In these communities numerous shrubs can occur such as shrubby cinquefoil, long-beaked willow, pussy willow, meadow willow, silky willow, and dogwood. The herbaceous layer can be very diverse with forbs, sedges, and rushes including bog goldenrod, New England American aster, blue iris, marsh fern, spotted Joe-Pye weed, joint-leaved rush, inland sedge, porcupine sedge, dark green bulrush, and common fox sedge. Scattered red maples, eastern red cedars, and American larch can also occur.

**Table 1. Dominant plant species**

Tree	(1) <i>Fraxinus nigra</i> (2) <i>Thuja occidentalis</i>
Shrub	(1) <i>Lindera benzoin</i> (2) <i>Rhamnus alnifolia</i>
Herbaceous	(1) <i>Ranunculus cariectorum</i>

## Physiographic features

The site occurs on nearly level to gently sloping depressions and drainageways on till plains. Slope ranges from 0 to 8 percent. Water table depth is at or near the surface form most of the year (0-6 inches).

**Table 2. Representative physiographic features**

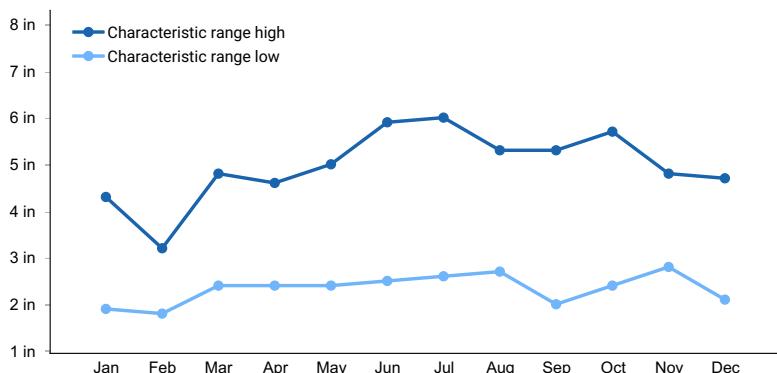
Landforms	(1) Depression (2) Drainageway (3) Till plain
Ponding frequency	Occasional to frequent
Slope	0–8%
Water table depth	0–6 in

## Climatic features

Mean annual precipitation is 48 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 139 and 168, respectively.

**Table 3. Representative climatic features**

Frost-free period (average)	139 days
Freeze-free period (average)	168 days
Precipitation total (average)	48 in

**Figure 1. Monthly precipitation range**

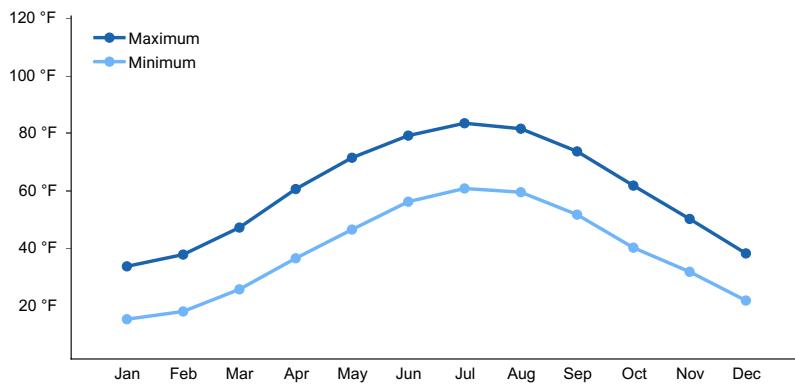


Figure 2. Monthly average minimum and maximum temperature

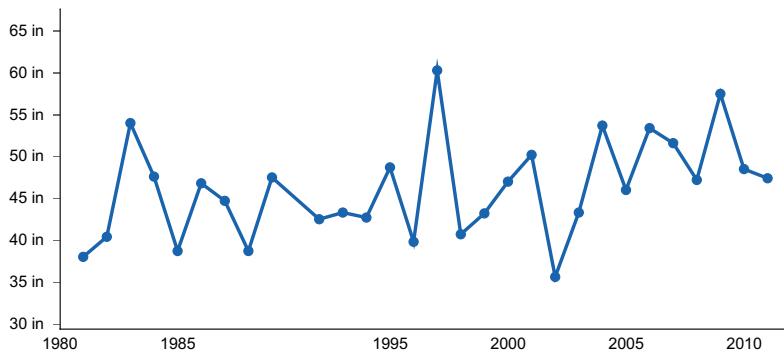


Figure 3. Annual precipitation pattern

## Climate stations used

- (1) FALLS VILLAGE [USC00062658], Falls Village, CT
- (2) COPAKE [USC00301761], Copake, NY
- (3) HUDSON COR.FACILITY [USC00304025], Athens, NY
- (4) SARATOGA SPRINGS 4 SW [USC00307484], Saratoga Springs, NY
- (5) DANBURY [USC00061762], Bethel, CT
- (6) STORMVILLE [USC00308304], Stormville, NY

## Influencing water features

### Soil features

The site consists of very deep, poorly drained soils formed in till derived primarily from limestone and sandstone with smaller amounts of schist, shale and granite in some areas.

Table 4. Representative soil features

Parent material	(1) Till–limestone and sandstone
Surface texture	(1) Loam (2) Silt loam (3) Fine sandy loam
Drainage class	Poorly drained
Permeability class	Moderately slow to very slow
Soil depth	72 in
Surface fragment cover >3"	2%
Soil reaction (1:1 water) (0-40in)	5.1–8.4

Subsurface fragment volume <=3" (Depth not specified)	20%
Subsurface fragment volume >3" (Depth not specified)	3%

## Ecological dynamics

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## State and transition model

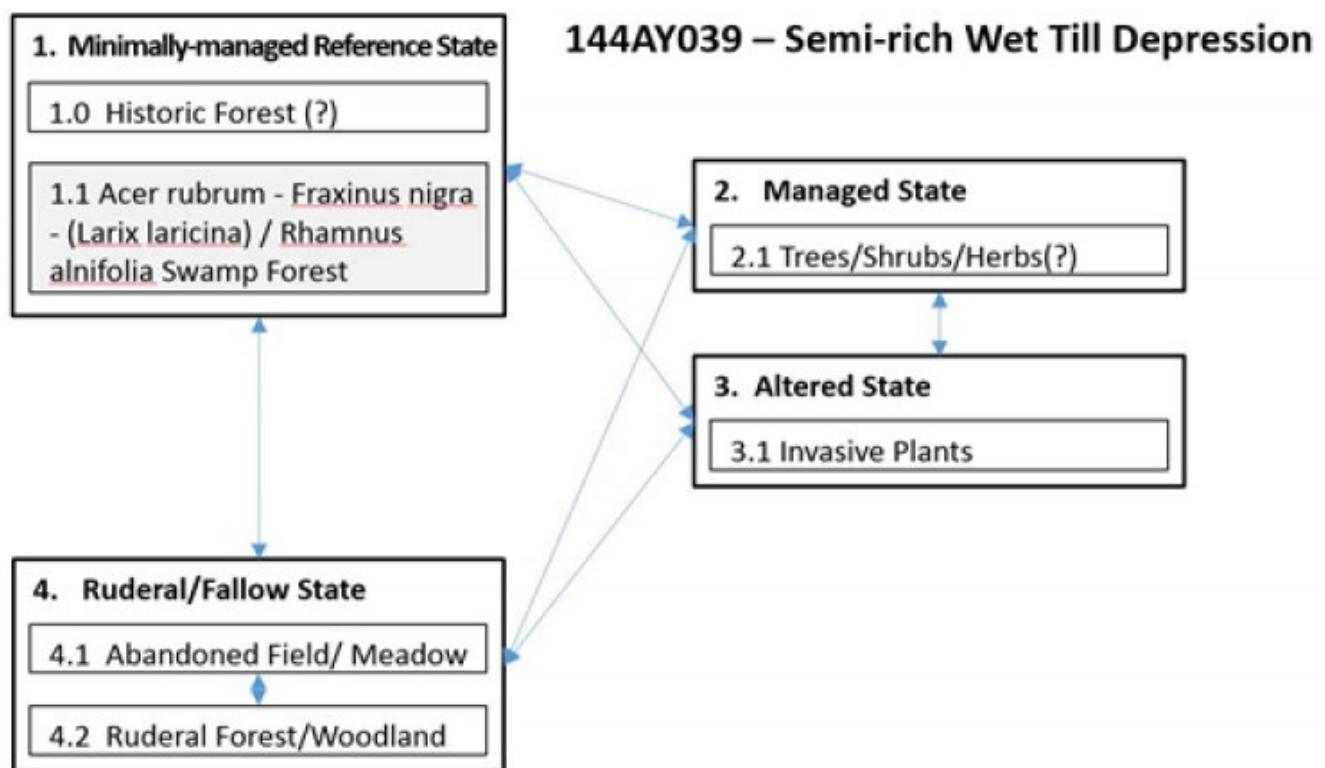


Figure 5. STM\_144AY039\_Semi-Rich\_Wet\_Till\_Depression

Transition	Drivers/practices
T1-2	Forest mgmt
T1-3, T1-4, T2-3, T3-4, T4-3	Disturbance/cutting/clearing, Brush removal
R2-1, R3-1, R4-1,	Restoration & Mgmt, Forest Stand Improvement, Upland Wildlife Mgmt
R3-1, R3-2	Brush removal, Herb weed control, Plant establishment
R4-1 CP4.1-4.2	Abandonment, succession
CP4.2-4.1	Restoration & Mgmt., Early Successional Habitat Development

Figure 6. STM\_144AY039\_Semi-Rich\_Wet\_Till Depressions

## 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.

Golet, F.C., A.J.K. Calhoun, W.R. DeRagon, D.J. Lowrey, and A.J. Gould. 1993. Ecology of red maple swamps in the glaciated Northeast: A community profile. U.S. Fish and Wildlife Service, Biological Report No.12. Washington, D.C. 151 pp.

Metzler, K.J. and Barrett, J.P., 2006. The Vegetation of Connecticut, a Preliminary Classification. Department of Environmental Protection, State Geological and Natural History Survey of Connecticut.

## 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:

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):

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5. Number of gullies and erosion associated with gullies:

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6. Extent of wind scoured, blowouts and/or depositional areas:

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7. Amount of litter movement (describe size and distance expected to travel):

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8. Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):

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9. Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):

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10. Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:

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11. Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):

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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:

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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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