Ecological site F144AY039NY
Semi-Rich Wet Till Depressions

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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 hills, drumlins, and bedrock-controlled uplands with a mantle of till. It is dissected by narrow glacio-fluvial valleys. The southernmost boundary of the area marks the farthest southward extent of Wisconsinian 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 eastern and southeastern New York, Devonian- to Pennsylvanian-age sandstone, shale, and limestone are dominant. Carbonate rocks, primarily dolomite and limestone, are the dominant kinds of bedrock in the part of this MLRA in northwestern Connecticut.

Classification relationships

USDA-NRCS (USDA 2006): Land Resource Region (LRR): N—East and Central Farming and Forest Region Major Land Resource Area (MLRA): 144A— New England and Eastern New York Upland, Southern Part. USDA-FS (Cleland et al. 2007) Province: 221 - Eastern Broadleaf Province Section: 221A - Lower New England Subsection: 221Aa – Boston Basin 221Ac – Narragansett-Bristol Lowland and Islands 221Ad – Southern New England Coastal Lowland 221Ae – Hudson Highlands 221Ag - Southeast New England Coastal Hills and Plains 221Ah - Worcester-Monadnock Plateau 221Ai – Gulf of Maine Coastal Plain 221Ak - Gulf of Maine Coastal Lowland Section: 221B – Hudson Valley Subsection: 221Ba – Hudson Limestone Valley 221Bb - Miami – Taconic Foothills 221Bc – Hudson Glacial Lake Plains

Ecological site concept

The Semi Rich Wet Till Depressions ecological site consists of moderately to very deep, somewhat poorly to very poorly drained soils formed in till derived primarily from limestone, dolomite, and sandstone with smaller amounts of schist, shale and granite in some areas. Representative soils are Massena, Mudgepond, and Sun. Circumneutral seepage swamps of the northeastern United States have moderate to closed canopies and a rich herb layer influenced by mineral- [calcium] -rich groundwater seepage. These can occur along streams or at headwaters in areas of calcareous parent materials. The modal reference plant community is an enriched red maple-black ash (Acer rubrum-Fraxinus nigra) forest.

Associated sites

F144AY036NY	**Semi-Rich Well Drained Till Uplands**
F144AY038NY	**Semi-Rich Moist Till Uplands**

Similar sites

F144AY042NY	**Semi-Rich Organic Wetlands**
F144AY043MA	**Acidic Organic Wetlands**

Table 1. Dominant plant species

Tree	(1) *Fraxinus nigra* (2) *Thuja occidentalis*
Shrub	(1) *Lindera benzoin* (2) *Rhamnus alnifolia*
Herbaceous	(1) *Ranunculus caricetorum*

Physiographic features

The site occurs on a variety of nearly level to gently sloping landforms in upland areas. Flooding does not occur, but the site can be subject to frequent flooding, with the water table at or near the surface most of the year.

Table 2. Representative physiographic features

Landforms	(1) Upland > Depression (2) Drainageway (3) Hill (4) Drumlinoid ridge (5) Till plain
Runoff class	Negligible to high
Flooding frequency	None
Ponding frequency	None to frequent
Elevation	0 – 550 m
Slope	0 – 10 %
Water table depth	0 – 40 cm

Aspect	Aspect is not a significant factor

Climatic features

The Koppen-Geiger climate classification of the area in which this MLRA occurs varies between Dfb (Warm-summer humid continental) in the North, and Dfa (Hot-summer humid continental) in the southern portion of the MLRA. Precipitation is usually uniformly distributed throughout the year. Near the coast, however, it is slightly lower in summer. Precipitation is slightly higher in spring and fall in inland areas. Rainfall occurs as high-intensity, convective thunderstorms during the summer. During the winter, most of the precipitation occurs as moderate-intensity storms (northeasters) that produce large amounts of rain or snow. The freeze-free period increases in length to the south.

Table 3 Representative climatic features

Frost-free period (characteristic range)	120-140 days
Freeze-free period (characteristic range)	150-170 days
Precipitation total (characteristic range)	1,090-1,250 mm
Frost-free period (actual range)	110-150 days
Freeze-free period (actual range)	140-190 days
Precipitation total (actual range)	1,090-1,320 mm
Frost-free period (average)	130 days
Freeze-free period (average)	160 days
Precipitation total (average)	1,170 mm

- (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

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.

Very poorly drained

Water is removed from the soil so slowly that free water remains at or very near the surface during much of the growing season. Internal free water occurrence is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown. The soils are commonly level or depressed and frequently ponded. In areas where rainfall is high or nearly continuous, slope gradients may be greater.

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 to very deep, somewhat poorly to very poorly drained soils formed in till derived primarily from limestone, dolomite, and sandstone with smaller amounts of schist, shale and granite in some areas. Representative soils are Massena, Mudgepond, and Sun.

Table 4. Representative soil features

Parent material	(1) Till – limestone and sandstone (2) Dolomite (3) Schist (4) Shale (5) Granite
Surface texture	(1) Loam (2) Silt loam
Family particle size	(1) Coarse-loamy
Drainage class	Somewhat poorly drained to very poorly drained
Permeability class	Moderately slow to very slow
Depth to restrictive layer	50 – 180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	0 – 10 %
Available water capacity (Depth not specified)	7.62 – 15.24 cm

Soil reaction (1:1 water) (0-101.6cm)	5.1 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	10 – 30 %
Subsurface fragment volume >3" (Depth not specified)	0 – 20 %

Ecological dynamics

[Caveat: The vegetation information contained in this section and is only provisional, based on concepts, not yet validated with field work.*]

The vegetation groupings described in this section are based on the terrestrial ecological system classification and vegetation associations developed by NatureServe (Comer 2003). Terrestrial ecological SYSTEMS are specifically defined as a group of plant community-types called ASSOCIATIONS that tend to [co-]occur within landscapes with similar ecological processes, substrates, and/or environmental gradients. Any given system will typically manifest itself in a landscape at intermediate geographic scales of tens-to-thousands of hectares and will persist for 50 or more years. A vegetation association is a plant community that is much more specific to a given soil, geology, landform, climate, hydrology, and disturbance history. It is the basic unit for vegetation classification and recognized by the US National Vegetation Classification (US FDGC 2008). Each association will be named by the diagnostic and often dominant species that occupy the different height strata (tree, sapling, shrub, and herb). Within the NatureServe Explorer database (NatureServe, 2015), ecological systems are numbered by a Community Ecological System Code (CES) and individual vegetation associations are assigned an identification number called a Community Element Global Code (CEGL).

Additional and more localized vegetation information is provided by the State Natural Heritage Programs of Connecticut (Metzler and Barrett 2001), Massachusetts (Swain and Kearsley 2001), New Hampshire (Sperduto and Nichols, 2011), New York (Edinger et al., 2014), and Rhode Island (Enser and Lungren, 2006).

Ecological Dynamics
The Semi Rich Wet Till Depressions ecological site is characteristic of the North-Central Interior and Appalachian Rich Swamp system (CES202.605). The modal reference plant community is an enriched red maple- black ash forest. This swamp forest is subject to natural disturbances by storm extremes ranging from windthrows to downbursts to ice-storms. Alteration of the natural hydrological regime (diversions, culverts, impoundments) can be a threat. Other agents-of-change include direct land conversions and fragmentation by agricultural, development, drainage, and logging. Indirect effects include changes to hydrology and water chemistry by development activities in the watershed.
Invasive plants include purple loosestrife (Lythrum salicaria), common reed (Phragmites australis ssp. australis spp. australis), and buckthorn (Frangula alnus).

[*Caveat] The information presented is representative of very complex vegetation communities. Key indicator plants and ecological processes are described to help inform land management decisions. Plant communities will differ across the MLRA because of the naturally occurring variability in weather, soils, and geography. The reference plant community is not necessarily the management goal. The drafts of species lists are merely representative and are not botanical descriptions of all species occurring, or potentially occurring, on this site. They are not intended to cover every situation or the full range of conditions, species, and responses for the site.

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 (%)

Table 6. Community 1.2 plant community composition

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

Table 7. Community 1.3 plant community composition

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

Table 8. Community 2.1 plant community composition

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

Table 9. Community 2.2 plant community composition

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

Table 10. Community 3.1 plant community composition

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

Table 11. Community 3.2 plant community composition

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

Table 12. Community 3.3 plant community composition

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

Inventory data references

Future work is needed, as described in a future project plan, to validate the information presented in this provisional ecological site description. Future work includes field sampling, data collection and analysis by qualified vegetation ecologists and soil scientists. As warranted, annual reviews of the project plan can be conducted by the Ecological Site Technical Team. A final field review, peer review, quality control, and quality assurance reviews of the ESD are necessary to approve a final document.

Other references

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Approval

Greg Schmidt, 10/04/2024

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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	11/01/2026
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):**

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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:**
