

Ecological site F144AY042NY

Semi-Rich Organic Wetlands

Last updated: 10/04/2024
Accessed: 09/25/2026

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): 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 Organic Wetlands ecological site consists of very deep, very poorly drained organic soils formed in more than 16 inches of highly decomposed organic material on a variety of landforms. Soils are euic. Characteristic soils are Natchaug, Catden, Pinnebog, Timakwa, Wawayanda, Olentangy, and Palms. The site occurs within a variety of landforms, basins, depressions, swamps, seepage wetlands, and fens, occurring on organic soils of sub-acidic and higher pH values equal to or greater than 4.5 (i.e., euic). These various hydro-geologic settings are the primary determinant of water regimes, water chemistry, plant community structure and floristics, and groundwater recharge and discharge relationships (Golet et al 1992). Consequently, the reference plant community of the site is extremely variable ranging from hardwood, mixed, and conifer swamps to more open shrubby wetlands and herbaceous wetlands and fens ranging in character with the prevailing pH.

Similar sites

F144AY014CT	Wet Sandy Low Floodplain
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F144AY039NY	Semi-Rich Wet Till Depressions
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Table 1. Dominant plant species

Tree	(1) <i>Acer rubrum</i>
Shrub	(1) <i>Vaccinium corymbosum</i>
Herbaceous	(1) <i>Sphagnum</i>

Physiographic features

The site occurs within nearly level depressions and frequently flooded/ponded terrain, with the water table at or near the ground surface.

Table 2. Representative physiographic features

Landforms	(1) Depression (2) Bog (3) Marsh (4) Swamp
Runoff class	Negligible to very low
Flooding frequency	None to frequent
Ponding frequency	None to frequent
Elevation	0 – 730 m
Slope	0 %
Water table depth	0 – 30 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)	1,140-1,300 mm
Frost-free period (actual range)	110-160 days
Freeze-free period (actual range)	140-200 days
Precipitation total (actual range)	1,070-1,320 mm
Frost-free period (average)	130 days
Freeze-free period (average)	160 days
Precipitation total (average)	1,190 mm

- (1) FALLS VILLAGE [USC00062658], Falls Village, CT
- (2) NEWTON [USC00286177], Newton, NJ
- (3) WEST POINT [USC00309292], Cold Spring, NY
- (4) DANBURY [USC00061762], Bethel, CT
- (5) SARATOGA SPRINGS 4 SW [USC00307484], Saratoga Springs, NY
- (6) VALATIE 1 N [USC00308746], Valatie, NY

Influencing water features

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 very deep, very poorly drained soils formed primarily in highly decomposed woody and herbaceous organic materials. Representative soils are Natchaug, Catden, Pinnebog, Timakwa, Wawayanda, Olentangy, and Palms.

Table 4. Representative soil features

Parent material	(1) Organic material (2) Herbaceous organic material
Surface texture	(1) Muck (2) Mucky
Drainage class	Very poorly drained
Permeability class	Very slow to slow
Depth to restrictive layer	180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (Depth not specified)	25.4 – 45.72 cm
Soil reaction (1:1 water) (Depth not specified)	3.5 – 8.4
Subsurface fragment volume <=3" (Depth not specified)	0 – 40 %
Subsurface fragment volume >3" (Depth not specified)	Not specified

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 Organic Wetlands are characterized by a wide-range in pH settings ranging from sub-acidic to higher pH values equal to or greater than 4.5 pH (euic). Under lessor sub-acidic pH values, Semi-rich Organic Wetlands overlap with vegetation of the Acid Organic Wetlands, characterized by North-Central Appalachian Swamp system (CES202.604), North-Central Appalachian and Acadian Conifer-Hardwood Acidic Swamp system (CES201.547), and the Northern Atlantic Coastal Plain Basin Peat Swamp system (CES203.522), Laurentian-Acadian Wet Meadow Shrub Swamp system (CES201.582). Under higher pH values, Semi-Rich Organic Wetlands are characterized by the vegetation of richer systems such as, North-Central Interior and Appalachian Rich Swamp system (CES202.605), North-Central Appalachian Seepage Fen (CES202.607), Laurentian-Acadian Alkaline Conifer-Hardwood Swamp (CES201.575), North-Central and Northeastern Seep (CES202.456), Northern Atlantic Coastal Plain Basin Peat Swamp system (CES203.522), Northern Atlantic Coastal Plain Basin Swamp and Wet Hardwood Forest system (CES203.520). The Semi-Rich Organic Wetlands occurs within basins, depressions, swamps, seepage wetlands, and fens occurring within sub-acidic to minerally enriched, higher-pH soils. These various hydro-geologic settings are the primary determinant of water regimes, water chemistry, plant community structure and floristics, and groundwater recharge and discharge relationships (Golet et al 1992). Consequently, the reference plant community of the site is extremely variable in floristic composition and appearance of hardwood, mixed, and conifer swamps to more open shrubby wetlands and herbaceous wetlands and fens. Natural disturbances include storm extremes ranging from windthrows to downbursts to ice-storms as well as pests and disease. 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. A wide variety of non-native invasive plant species may also disrupt these plant communities.

[*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 (%)
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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 1.3 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 8. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 9. Community 2.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 10. Community 3.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 11. Community 3.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 12. Community 3.3 plant community composition

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

Acknowledgments

Michael Margo and tech team provided earlier drafts. Josh Hibit made compliance updates w/ 2021 Checklist V.2

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	09/25/2026
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:
