

# Ecological site F144AY042NY

## Semi-Rich Organic Wetlands

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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

The site consists of very deep, very poorly drained organic soils formed in more than 16 inches of highly decomposed organic material. Slope ranges from 0 to 2 percent. Soils are circumneutral. Characteristic soils are Catden, Timakwa, and Natchaug.

The site occurs within basins, depressions, swamps, seepage wetlands, and fens occurring within mineral rich 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 variable. In New York (Edinger et al 2014) site coincides with rich graminoid fen, medium fen, red maple-hardwood swamp, highbush blueberry bog, deep emergent marsh, and rich shrub fen. In Massachusetts (Swain and Kearsley 2011) the site coincides with black ash-red maple-tamarack calcareous seepage swamp and red maple-black ash-bur oak swamp. In Connecticut the site coincides with rich fen, shrub thicket, and Circumneutral northern white cedar swamp.

Natural disturbances affecting the balance of species include fire, windthrow, ice damage, beaver activity.

Anthropogenic disturbances such as the construction of drainage ditches, roads, and dams can have significant effects on the plant communities.

**Table 1. Dominant plant species**

Tree	(1) <i>Thuja occidentalis</i>
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Shrub	(1) <i>Dasiphora fruticosa</i>
Herbaceous	Not specified

## Physiographic features

The site occurs within depressions on till plains, lake plains, outwash plains, and flood plains. Slope ranges from 0 to 2 percent.

**Table 2. Representative physiographic features**

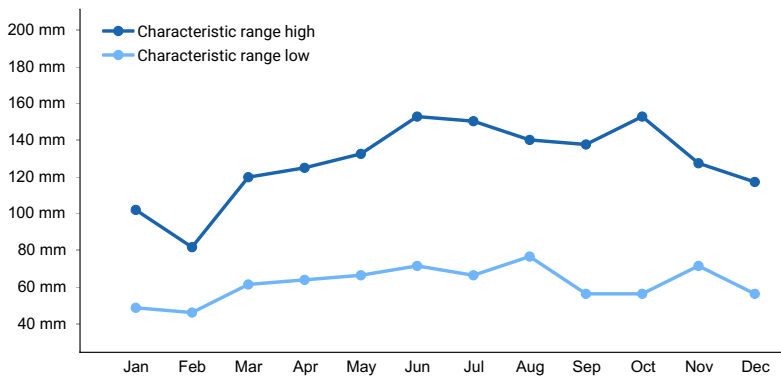
Landforms	(1) Depression (2) Fen
Flooding duration	Very brief (4 to 48 hours)
Flooding frequency	None to rare
Ponding duration	Long (7 to 30 days)
Ponding frequency	None to frequent

## Climatic features

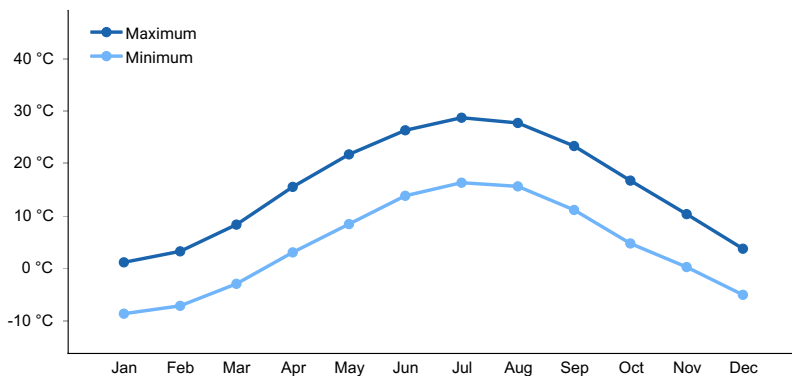
Mean annual precipitation is 49 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 141 and 167, respectively.

**Table 3. Representative climatic features**

Frost-free period (average)	141 days
Freeze-free period (average)	167 days
Precipitation total (average)	1,245 mm



**Figure 1. Monthly precipitation range**



**Figure 2. Monthly average minimum and maximum temperature**

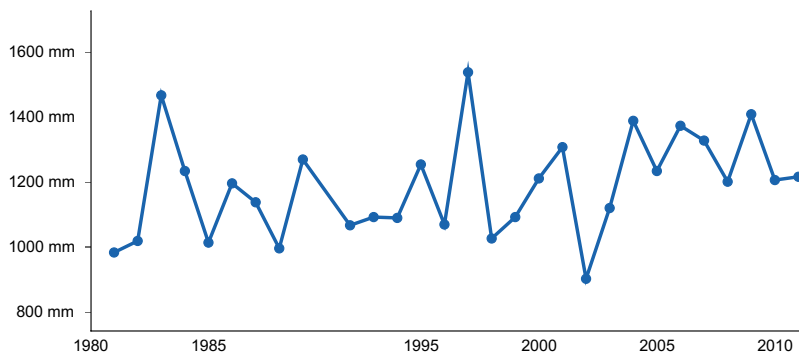


Figure 3. Annual precipitation pattern

### Climate stations used

- (1) FALLS VILLAGE [USC00062658], Falls Village, CT
- (2) 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

#### Soil features

The site consists of very deep, very poorly drained soils formed in highly decomposed woody and herbaceous organic materials. The organic material extends to a depth of 16 inches or more.

Table 4. Representative soil features

Surface texture	(1) Muck
Drainage class	Very poorly drained

### Ecological dynamics

The site occurs within basins, depressions, swamps, seepage wetlands, and fens occurring within mineral rich 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 variable. In New York (Edinger et al 2014) site coincides with rich graminoid fen, medium fen, red maple-hardwood swamp, highbush blueberry bog, deep emergent marsh, and rich shrub fen. In Massachusetts (Swain and Kearsley 2011) the site coincides with black ash-red maple-tamarack calcareous seepage swamp and red maple-black ash-bur oak swamp. In Connecticut the site coincides with rich fen, shrub thicket, and Circumnuetral northern white cedar swamp. Natural disturbances affecting the balance of species include fire, windthrow, ice damage, beaver activity. Anthropogenic disturbances such as the construction of drainage ditches, roads, and dams can have significant effects on the plant communities.

### State and transition model

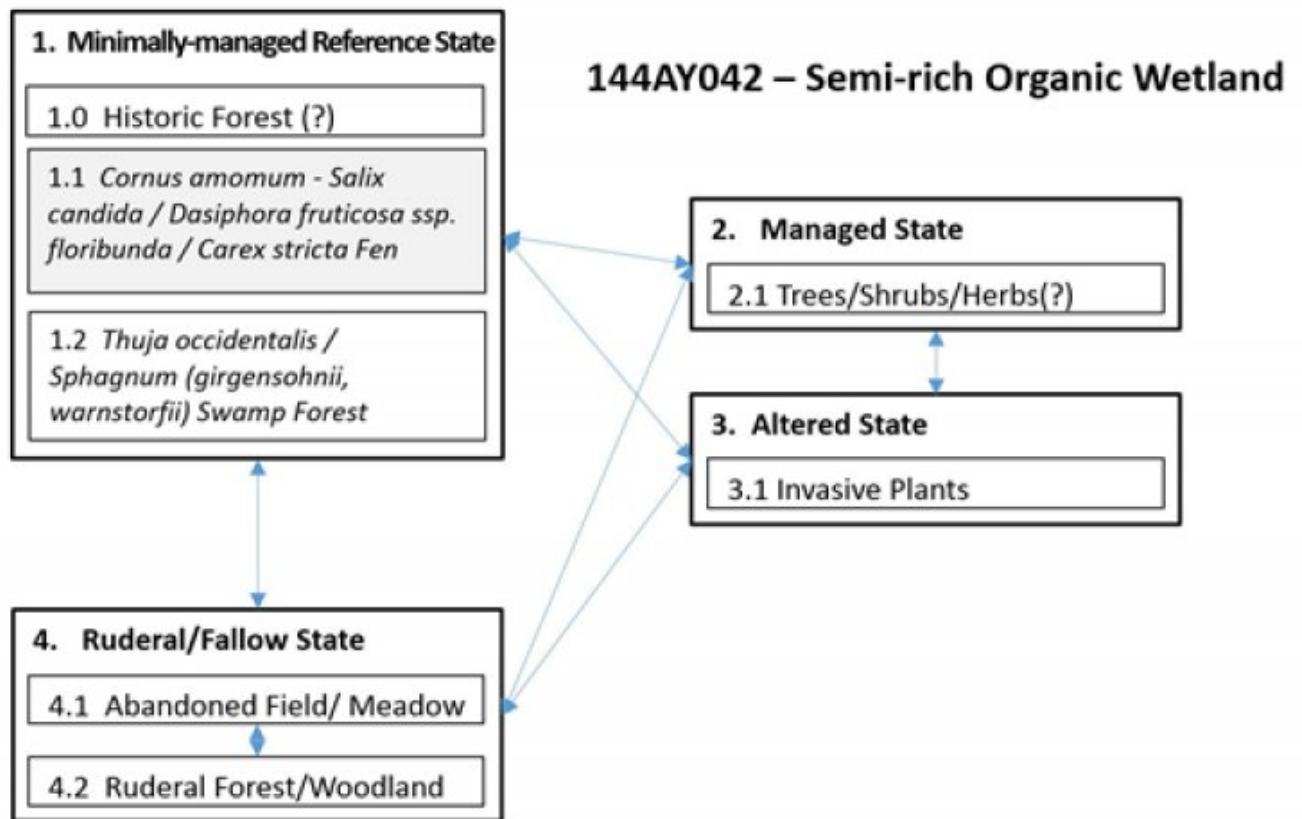


Figure 5. STM\_144AY042\_Semi-Rich\_Organic\_Wetland

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

Figure 6. STM\_144AY042\_Semi-Rich\_Organic\_Wetland

## 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.

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Swain, P.C. and Kearsley, J.B., 2001. Classification of the natural communities of Massachusetts. Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries and Wildlife.

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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	
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:**

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