

Ecological site F144AY041MA

Very Wet Till Depressions

Accessed: 05/17/2024

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 in much of the area, but it is 2,000 feet on some hills. Relief is mostly about 6 to 65 feet in the valleys and about 80 to 330 feet 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 poorly drained loamy soils formed in subglacial till derived mainly from granite, gneiss and/or schist. Slopes range from 0 to 3 percent. Representative soils are Menlo, Whitman, and Mansfield.

The reference plant community is a red maple swamp (Swain and Kearsley 2011, Metzler and Barrett 2006). The tree layer is dominated by red maple with scattered pin oak and blackgum. Other trees that can occur include eastern hemlock, shagbark hickory, white pine, white ash, and white oak. Common shrubs include highbush blueberry, common winterberry, sweet pepperpush, spicebush, and swamp azalea. Herbaceous species include skunk cabbage, cinnamon fern, royal fern, mannagrass, and tussock sedge. Blowdowns are common resulting in a generally open tree cover, less than 75% (Metzler and Barrett 2006). 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).

Table 1. Dominant plant species

Tree	(1) <i>Acer rubrum</i> (2) <i>Nyssa sylvatica</i>
Shrub	Not specified
Herbaceous	(1) <i>Lycopus americanus</i> (2) <i>Carex stricta</i>

Physiographic features

The site occurs on nearly level and are in depressions on till plains. Slope ranges from 0 to 3 percent. Ponding is occasional September to June.

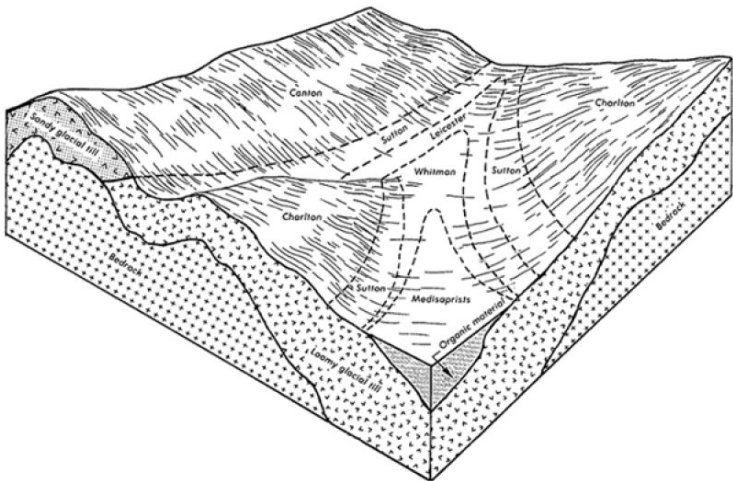


Figure 1. Very Wet Till Depressions - Whitman soils

Table 2. Representative physiographic features

Landforms	(1) Depression (2) Till plain
Ponding duration	Brief (2 to 7 days) to long (7 to 30 days)
Ponding frequency	None to occasional
Slope	0–3%
Water table depth	0–30 cm

Climatic features

Mean annual precipitation is 53 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 158 and 184, respectively.

Table 3. Representative climatic features

Frost-free period (average)	158 days
Freeze-free period (average)	184 days
Precipitation total (average)	1,346 mm

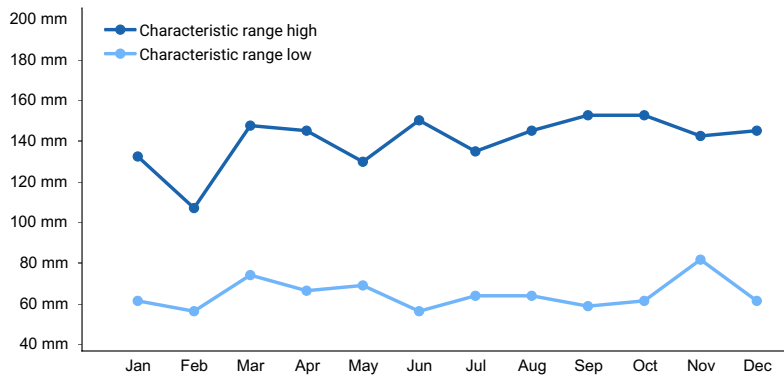


Figure 2. Monthly precipitation range

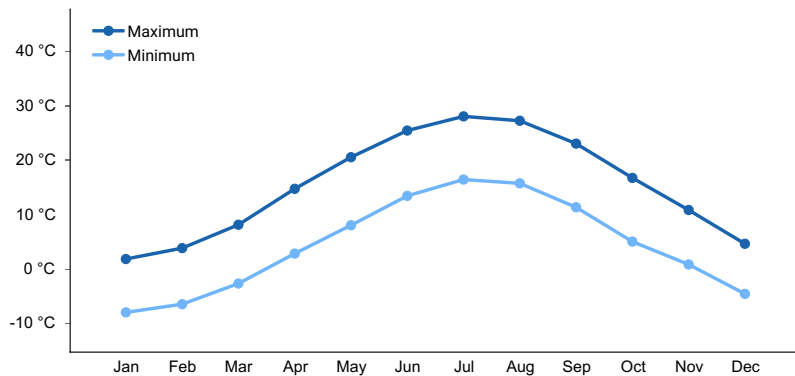


Figure 3. Monthly average minimum and maximum temperature

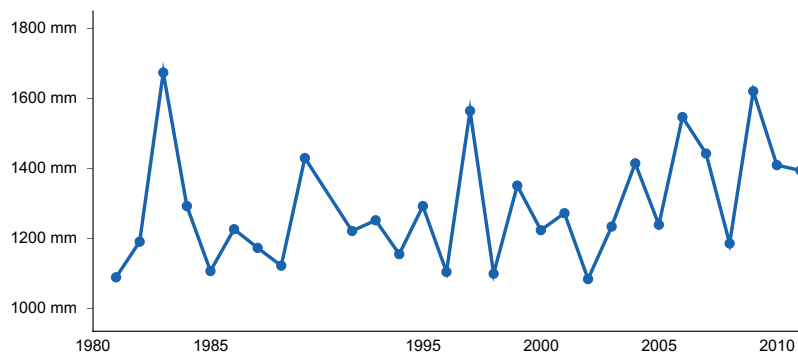


Figure 4. Annual precipitation pattern

Climate stations used

- (1) ROCHESTER [USC00196938], Lakeville, MA
- (2) STORRS [USC00068138], Storrs Mansfield, CT
- (3) BURLINGTON [USC00060973], Avon, CT
- (4) DANBURY [USC00061762], Bethel, CT
- (5) KINGSTON [USC00374266], Kingston, RI
- (6) WORCESTER RGNL AP [USW00094746], Leicester, MA
- (7) LOWELL [USC00194313], Lowell, MA

Influencing water features

Soil features

The site consists of very poorly drained loamy soils formed in subglacial till derived mainly from granite, gneiss and/or schist. Soils are very deep to bedrock and range from shallow to moderately deep to a densic contact. Representative soils are Menlo, Whitman, and Mansfield.

Table 4. Representative soil features

Parent material	(1) Subglacial till–granite
Surface texture	(1) Loam (2) Mucky silt loam (3) Silt loam
Drainage class	Very poorly drained
Permeability class	Very slow
Soil depth	183 cm
Surface fragment cover >3"	10%
Soil reaction (1:1 water) (0-101.6cm)	4.5–6.5
Subsurface fragment volume <=3" (Depth not specified)	12%
Subsurface fragment volume >3" (Depth not specified)	5%

Ecological dynamics

The reference plant community is a red maple swamp (Swain and Kearsley 2011, Metzler and Barrett 2006). The tree layer is dominated by red maple with scattered pin oak and blackgum. Other trees that can occur include eastern hemlock, shagbark hickory, white pine, white ash, and white oak. Common shrubs include highbush blueberry, common winterberry, sweet pepperpush, spicebush, and swamp azalea. Herbaceous species include skunk cabbage, cinnamon fern, royal fern, mannagrass, and tussock sedge. Blowdowns are common resulting in a generally open tree cover, less than 75% (Metzler and Barrett 2006). The site is threatened by invasive exotic plants such as Japanese barberry and glossy alder-buckthorn.

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State and transition model

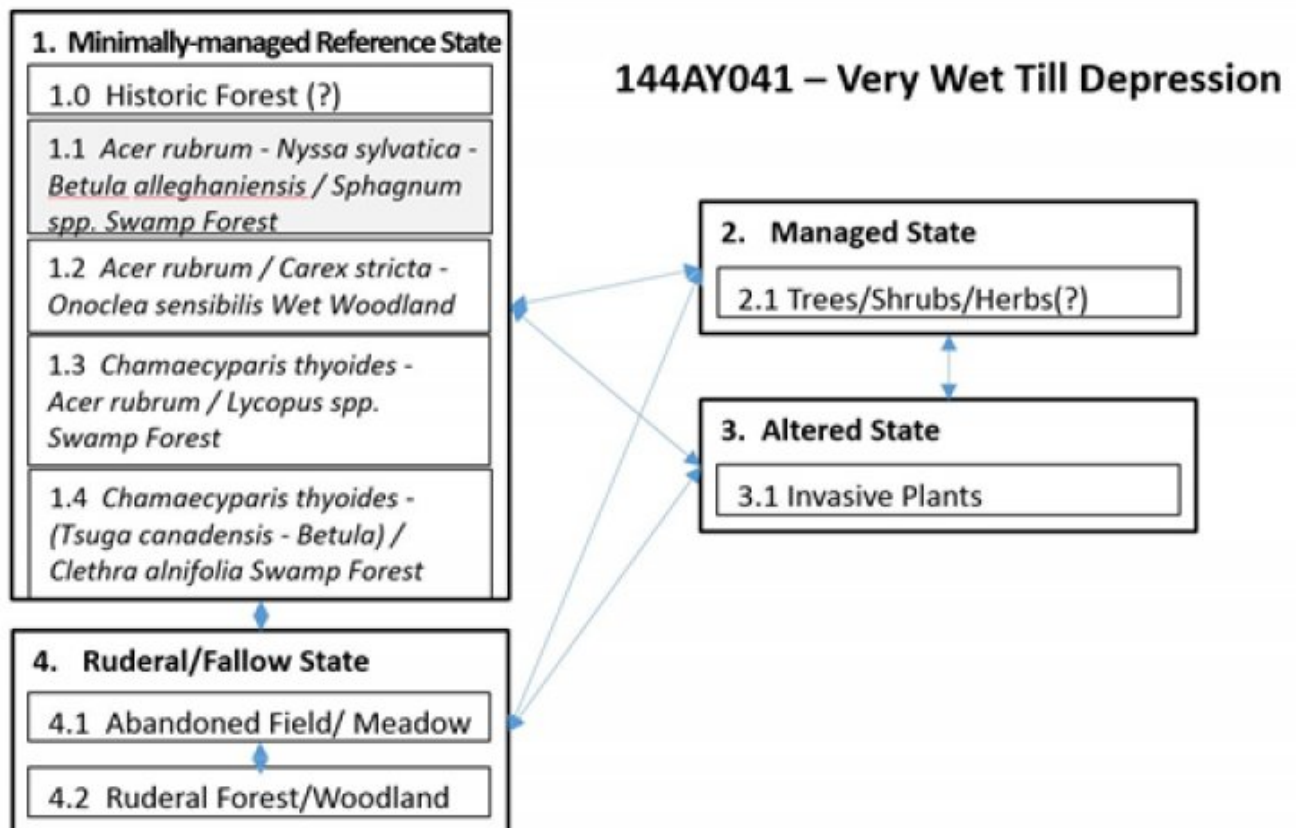


Figure 6. STM_144AY041_Very_Wet_Till_Depression

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 7. STM_144AY041_Very_Wet_Till_Depression

Other references

REFERENCES

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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.

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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.

Thompson, E.H. and Sorenson, E.R., 2000. Wetland, woodland, wildland. Vermont Department of Fish and Wildlife and The Nature Conservancy. Publ. University Press of New England.

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:

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:**
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17. **Perennial plant reproductive capability:**
