

# Ecological site F144AY037MA

## Moist Dense Till Uplands

Accessed: 04/26/2024

### 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

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 moderately well drained soils formed in coarse-loamy lodgment till. They are very deep to bedrock and moderately deep to a densic contact. They are nearly level to strongly sloping soils on till plains, hills, and drumlins. Representative soils are Woodbridge, Scituate, Rainbow, Pittstown, and Birchwood.

The reference community coincides with the northern red oak – yellow birch wetland transition forest (Metzler and Barrett 2006). Dominant tree species include red oak, black oak, red maple, and yellow birch. Common shrubs include highbush blueberry, spicebush, and American witch hazel. Herbaceous plants include cinnamon fern, New York fern, and sessileleaf bellwort. The site is threatened by invasive exotic plants such as Japanese barberry, shrubby honeysuckle, buckthorn, garlic mustard, and multiflora rose.

The site is very similar to the Moist Dense Till Uplands within MLRA 145, however the growing season is longer within MLRA 145 relative to the surrounding MLRA 144A. Additionally, the unique red soil mineralogy which characteristic of the Connecticut River Valley (MLRA 145) provides a relatively richer substrate for vegetative growth.

**Table 1. Dominant plant species**

Tree	(1) <i>Quercus rubra</i> (2) <i>Betula alleghaniensis</i>
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Shrub	(1) <i>Lindera benzoin</i>
Herbaceous	(1) <i>Osmundastrum cinnamomeum</i>

## Physiographic features

They are nearly level to strongly sloping till plains, hills, and drumlins. Slope commonly is less than 8 percent, but the range includes 0 to 25 percent.

**Table 2. Representative physiographic features**

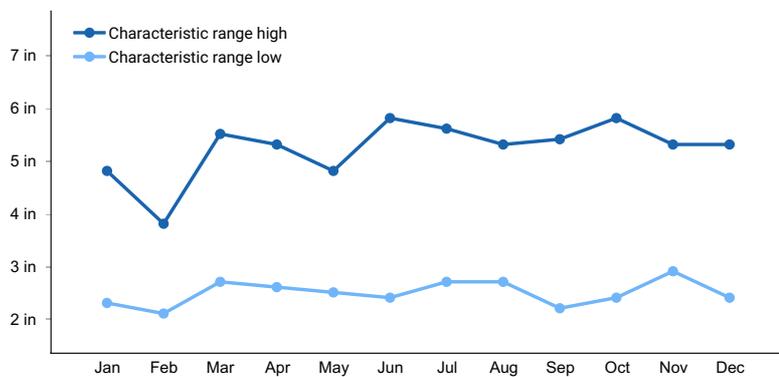
Landforms	(1) Till plain (2) Hill (3) Drumlin
Slope	0–25%
Water table depth	15–20 in

## Climatic features

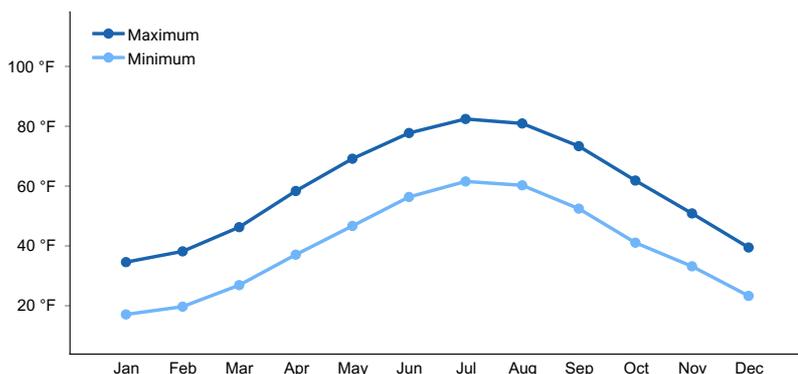
Mean annual precipitation is 50 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 153 and 180, respectively.

**Table 3. Representative climatic features**

Frost-free period (average)	153 days
Freeze-free period (average)	180 days
Precipitation total (average)	50 in



**Figure 1. Monthly precipitation range**



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

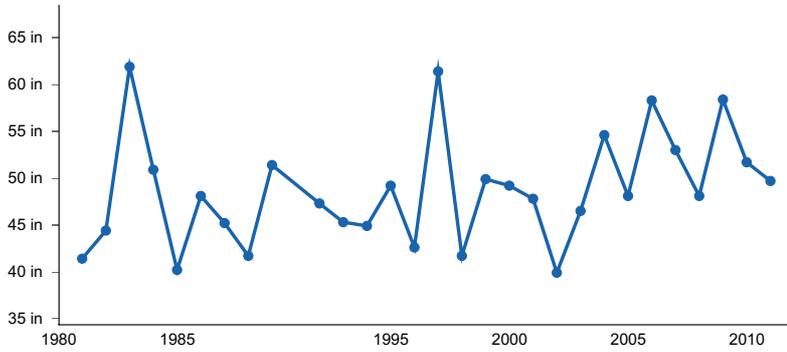


Figure 3. Annual precipitation pattern

### Climate stations used

- (1) CRANFORD [USC00282023], Westfield, NJ
- (2) YORKTOWN HEIGHTS 1W [USC00309670], Yorktown Heights, NY
- (3) STORRS [USC00068138], Storrs Mansfield, CT
- (4) WORCESTER RGNL AP [USW00094746], Leicester, MA
- (5) DANBURY [USC00061762], Bethel, CT
- (6) BROCKTON [USC00190860], Brockton, MA
- (7) ROCHESTER [USC00196938], Lakeville, MA
- (8) TULLY LAKE [USC00198573], Athol, MA
- (9) NASHUA [USC00275702], Hudson, NH
- (10) TROY L&D [USC00308600], Troy, NY

### Influencing water features

#### Soil features

The site consists of moderately well drained soils formed in coarse-loamy lodgment till. They are very deep to bedrock and moderately deep to a densic contact. The soils formed in acid till derived mostly from schist, gneiss, and granite.

Table 4. Representative soil features

Parent material	(1) Lodgment till–granite
Surface texture	(1) Fine sandy loam (2) Sandy loam (3) Loam
Drainage class	Moderately well drained
Permeability class	Not specified
Surface fragment cover >3"	10%
Soil reaction (1:1 water) (0-40in)	4.5–6.8
Subsurface fragment volume <=3" (Depth not specified)	25%

### Ecological dynamics

The reference community coincides with the northern red oak – yellow birch wetland transition forest (Metzler and Barrett 2006). Dominant tree species include red oak, black oak, red maple, and yellow birch. Common shrubs include highbush blueberry, spicebush, and American witch hazel. Herbaceous plants include cinnamon fern, New York fern, and sessileleaf bellwort. The site is threatened by invasive exotic plants such as Japanese barberry, shrubby honeysuckle, buckthorn, garlic mustard, and multiflora rose.

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## State and transition model

### 144AY037 – Moist Dense Till Upland

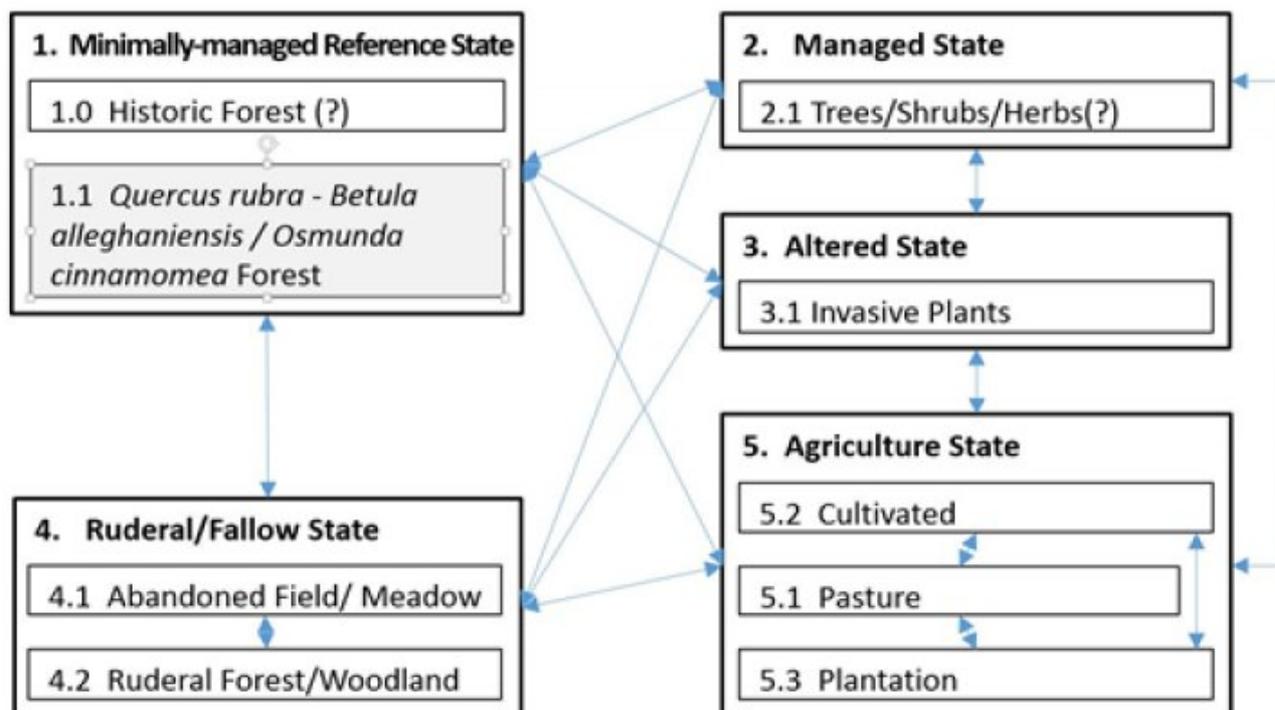


Figure 5. STM\_144AY037\_Moist\_Dense\_Till\_Upland

Transition	Drivers/practices
T1-2	Forest mgmt
T1-3, T1-4, T1-5, T2-3, T2-5, T3-4, T4-5, T4-3	Disturbance/cutting/clearing, Brush removal
R2-1, R3-1, R4-1, R4-2, R5-1, R5-2	Restoration & Mgmt, Forest Stand Improvement, Upland Wildlife Mgmt
R3-1, R3-2	Brush removal, Herb weed control, Plant establishment
R4-1, T2-4, T5-4, CP4.1-4.2	Abandonment, succession
R5-2	Plant establishment, Forest mgmt., Early Successional Habitat Development
CP5.1-5.2-5.3	Changing Agricultural phases
CP4.2-4.1	Restoration & Mgmt., Early Successional Habitat Development

Figure 6. STM\_144AY037\_Moist\_Dense\_Till\_Upland

## 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.

Sperduto, D.D., & Nichols, W.F. 2011. Natural Communities of New Hampshire, Second Ed. NH Natural Heritage Bureau, Concord, NH. Publ. UNH Cooperative Extension.

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:**

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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):**
- 
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):**
- 
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):**
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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):**
- 
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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