

Ecological site F144AY007CT

Well Drained Dense Till Uplands

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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

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 well drained, loamy soils formed in basal till derived mostly from gneiss, schist, and granite. The soils are very deep to bedrock and moderately deep to a densic contact. They are nearly level through steep soils on till plains, hills, and drumlins. Representative soils are Essex, Newport, Poquonock, Montauk, Paxton, Annisquam, and Bernardston.

The reference plant community is an oak dominated forest. Red and black oak are dominant tree species. Other common trees include chestnut oak, hickories, American beech, and eastern white pine. Common shrubs include lowbush blueberry and mountain laurel. Common herbaceous plants include Pennsylvania sedge, moccasin flower, eastern teaberry and western brackenfern (Metzler and Barrett 2006). In openings following tree falls or other natural disturbances warm season grasses such as little bluestem and big bluestem may occur along with early successional trees such as black birch. Invasive exotic plants such as Japanese barberry, multiflora rose, winged euonymus, and shrub honeysuckles can occur in disturbed sites.

The site is very similar to the Well Drained 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>Quercus velutina</i>
Shrub	(1) <i>Vaccinium angustifolium</i>
Herbaceous	Not specified

Physiographic features

The site occurs on nearly level to steep till plains, hills, ground moraines, and drumlins. Slopes range from 0 to 45 percent.

Table 2. Representative physiographic features

Landforms	(1) Till plain (2) Hill (3) Drumlin
Flooding frequency	None
Ponding frequency	None
Slope	0–45%

Climatic features

Mean annual precipitation is 50 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 154 and 178, respectively.

Table 3. Representative climatic features

Frost-free period (average)	154 days
Freeze-free period (average)	178 days
Precipitation total (average)	51 in

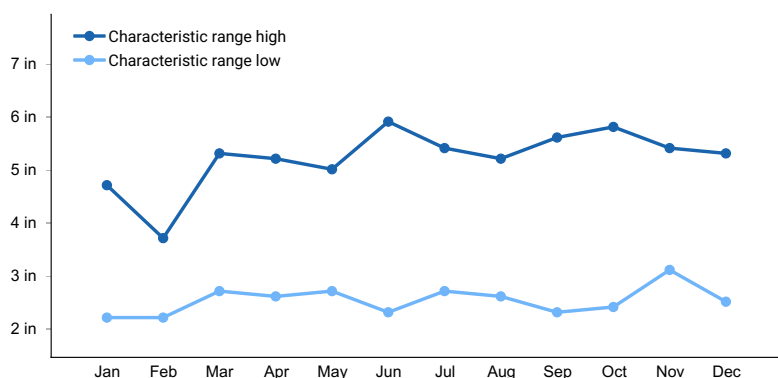


Figure 1. Monthly precipitation range

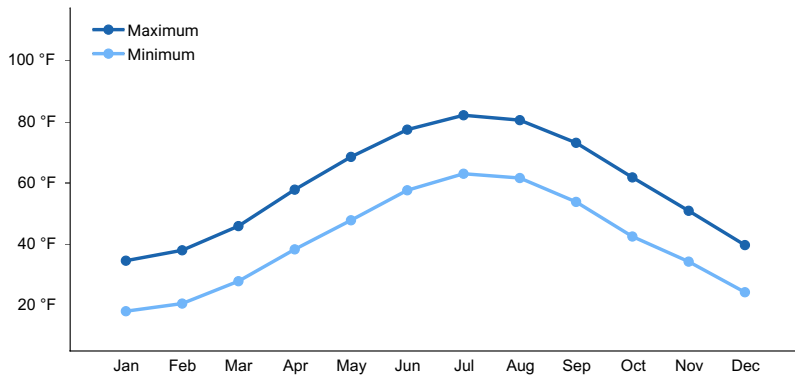


Figure 2. Monthly average minimum and maximum temperature

Influencing water features

Soil features

The site consists of well drained, loamy soils formed in basal till derived mostly from gneiss, schist, and granite. The soils are very deep to bedrock and moderately deep to a root restricting densic contact. They are nearly level through steep soils on till plains, hills, and drumlins. Reaction (pH) ranges from very strongly acid to moderately acid.

Representative soils are Essex, Newport, Poquonock, Montauk, Paxton, Annisquam, and Bernardston.

Table 4. Representative soil features

Parent material	(1) Basal till–granite
Surface texture	(1) Fine sandy loam (2) Sandy loam (3) Loam
Drainage class	Well drained
Permeability class	Slow
Soil depth	72 in
Surface fragment cover >3"	0–10%
Available water capacity (0–40in)	2–6 in
Soil reaction (1:1 water) (0–40in)	4.5–6
Subsurface fragment volume ≤3" (Depth not specified)	5–25%
Subsurface fragment volume >3" (Depth not specified)	0–25%

Ecological dynamics

The reference plant community is an oak dominated forest. Red and black oak are dominant tree species. Other common trees include chestnut oak, hickories, American beech, and eastern white pine. Common shrubs include lowbush blueberry and mountain laurel. Common herbaceous plants include Pennsylvania sedge, moccasin flower, eastern teaberry and western brackenfern (Metzler and Barrett 2006). In openings following tree falls or other natural disturbances warm season grasses such as little bluestem and big bluestem may occur along with early successional trees such as black birch. Invasive exotic plants such as Japanese barberry, multiflora rose, winged euonymus, and shrub honeysuckles can occur in disturbed sites.

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State and transition model

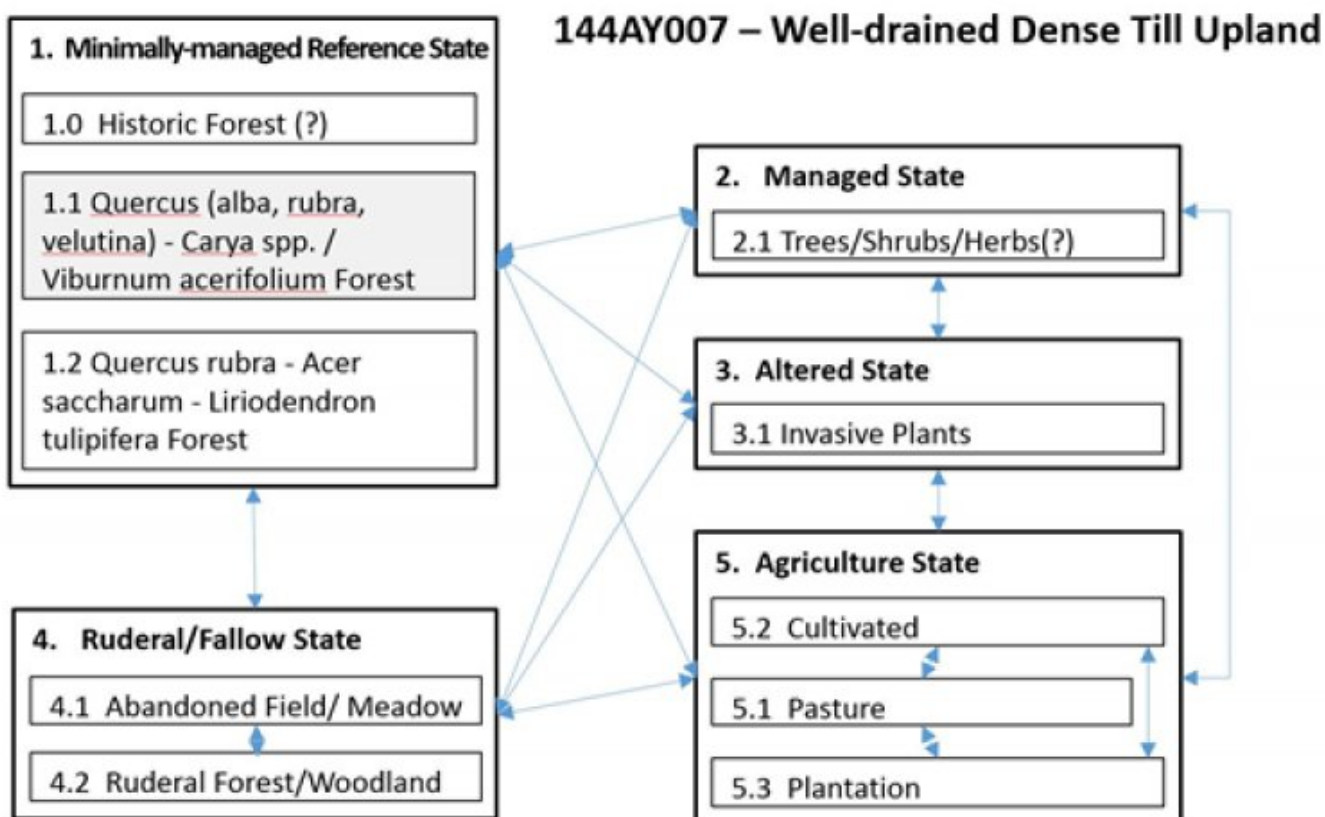


Figure 3. STM_144AY007_Well-Drained_Dense_Till_Upland

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.

Enser, R., Gregg, D., Sparks, C., August, P., Jordan, P., Coit, J., Raithel, C., Tefft, B., Payton, B., Brown, C. and LaBash, C., 2011. Rhode Island ecological communities classification. Rhode Island Natural History Survey, Kingston, RI.

Enser, R. and Lundgren, J.A., 2006. Natural communities of Rhode Island. Rhode Island Natural History Survey, Kingston (RI).

Gawler, S.C. and Cutko, A., 2010. Natural landscapes of Maine: a guide to natural communities and ecosystems. Maine Natural Areas Program, Department of Conservation.

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:**

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