

Ecological site F144AY033MA

Shallow Dry Till Uplands

Accessed: 05/19/2024

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 shallow, somewhat excessively drained, coarse-loamy, glacial till derived mostly from gneiss, schist, and granite. Soils are dry and nutrient poor. Slopes range from 0 to 50 percent on hills and ridges. Representative soils are Hollis, Brimfield, and Nassau

The reference plant community is an oak dominated forest. In some places the canopy may be more open forming a woodland. Black oak and chestnut are common trees in association with scarlet oak, red oak, pignut hickory, white ash, eastern white pine, eastern hemlock, and in some locations pitch pine. Trees are generally lower in stature and productivity relative to forests in deeper soils. Lowbush blueberry and black huckleberry are common shrubs. Spotted wintergreen and Pennsylvania sedge are common understory species. In openings following tree falls or other natural disturbances poverty oatgrass and little bluestem may occur 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.

Table 1. Dominant plant species

Tree	(1) <i>Quercus velutina</i>
Shrub	(1) <i>Gaylussacia baccata</i>
Herbaceous	(1) <i>Carex pensylvanica</i>

Physiographic features

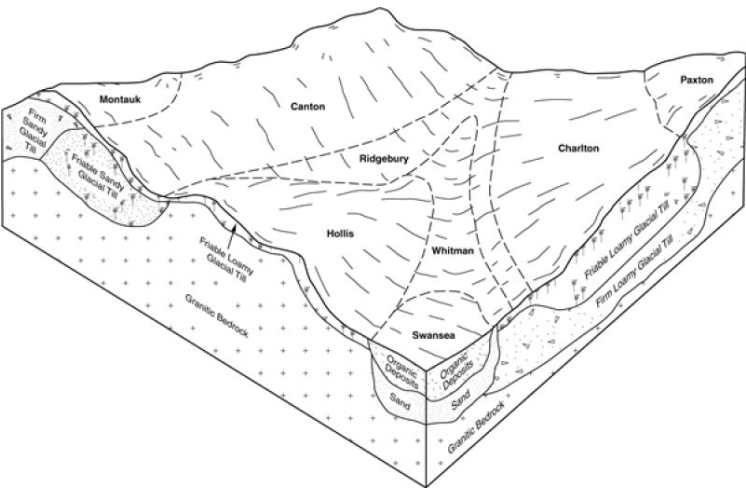


Figure 1. Shallow Dry Till Uplands - Hollis soils

Climatic features

Mean annual precipitation is 49 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 144 and 170, respectively.

Table 2. Representative climatic features

Frost-free period (average)	144 days
Freeze-free period (average)	170 days
Precipitation total (average)	1,245 mm

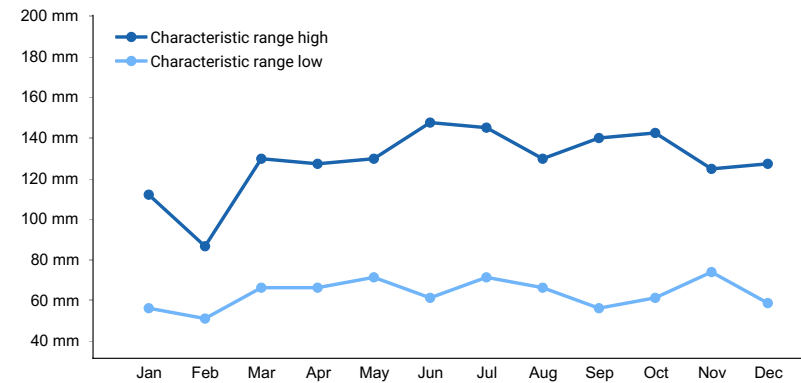


Figure 2. Monthly precipitation range

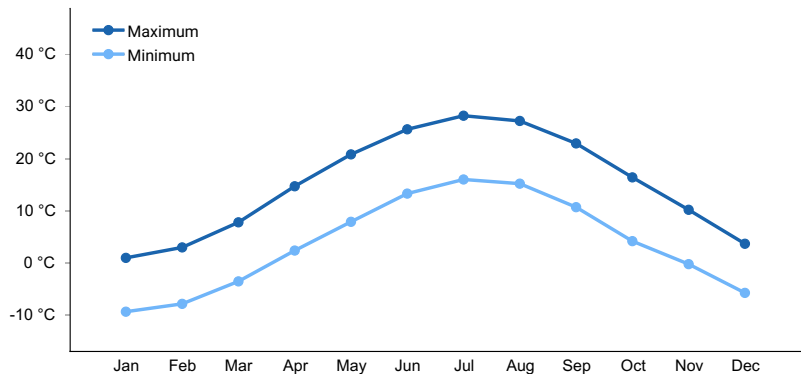


Figure 3. Monthly average minimum and maximum temperature

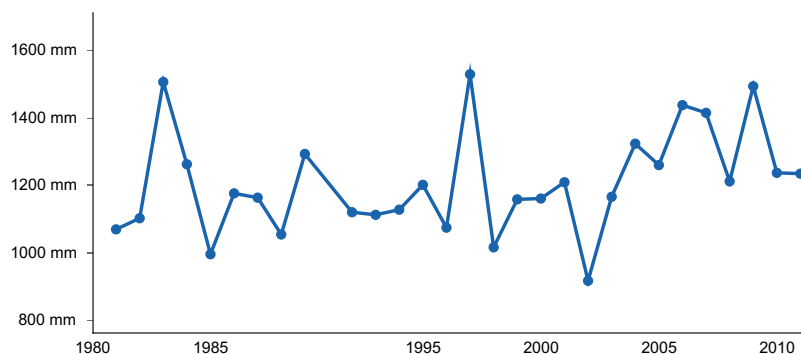


Figure 4. Annual precipitation pattern

Climate stations used

- (1) TROY L&D [USC00308600], Troy, NY
- (2) RHINEBECK 4SE [USC00307035], Rhinebeck, NY
- (3) STORRS [USC00068138], Storrs Mansfield, CT
- (4) EPPING [USC00272800], Fremont, NH
- (5) DANBURY [USC00061762], Bethel, CT
- (6) NEWTON [USC00286177], Newton, NJ
- (7) WORCESTER RGNL AP [USW00094746], Leicester, MA

Influencing water features

Soil features

The site consists of shallow (to bedrock), somewhat excessively drained, coarse-loamy, glacial till derived mostly from gneiss, schist, and granite. Soils are dry and nutrient poor. Representative soils are Hollis, Brimfield, and Nassau.

Table 3. Representative soil features

Parent material	(1) Ablation till–granite
Surface texture	(1) Gravelly fine sandy loam (2) Gravelly sandy loam (3) Gravelly loam
Drainage class	Well drained to somewhat excessively drained
Soil depth	25–51 cm
Surface fragment cover >3"	0–10%
Soil reaction (1:1 water) (0-101.6cm)	4.5–6
Subsurface fragment volume <=3" (Depth not specified)	2–5%
Subsurface fragment volume >3" (Depth not specified)	2–5%

Ecological dynamics

The reference plant community is an oak dominated forest. In some places the canopy may be more open forming a woodland. Black oak and chestnut are common trees in association with scarlet oak, red oak, pignut hickory, white ash, eastern white pine, eastern hemlock, and in some locations pitch pine. Trees are generally lower in stature and productivity relative to forests in deeper soils. Lowbush blueberry and black huckleberry are common shrubs. Spotted wintergreen and Pennsylvania sedge are common understory species. In openings following tree falls or other natural disturbances poverty oatgrass and little bluestem may occur 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.

State and transition model

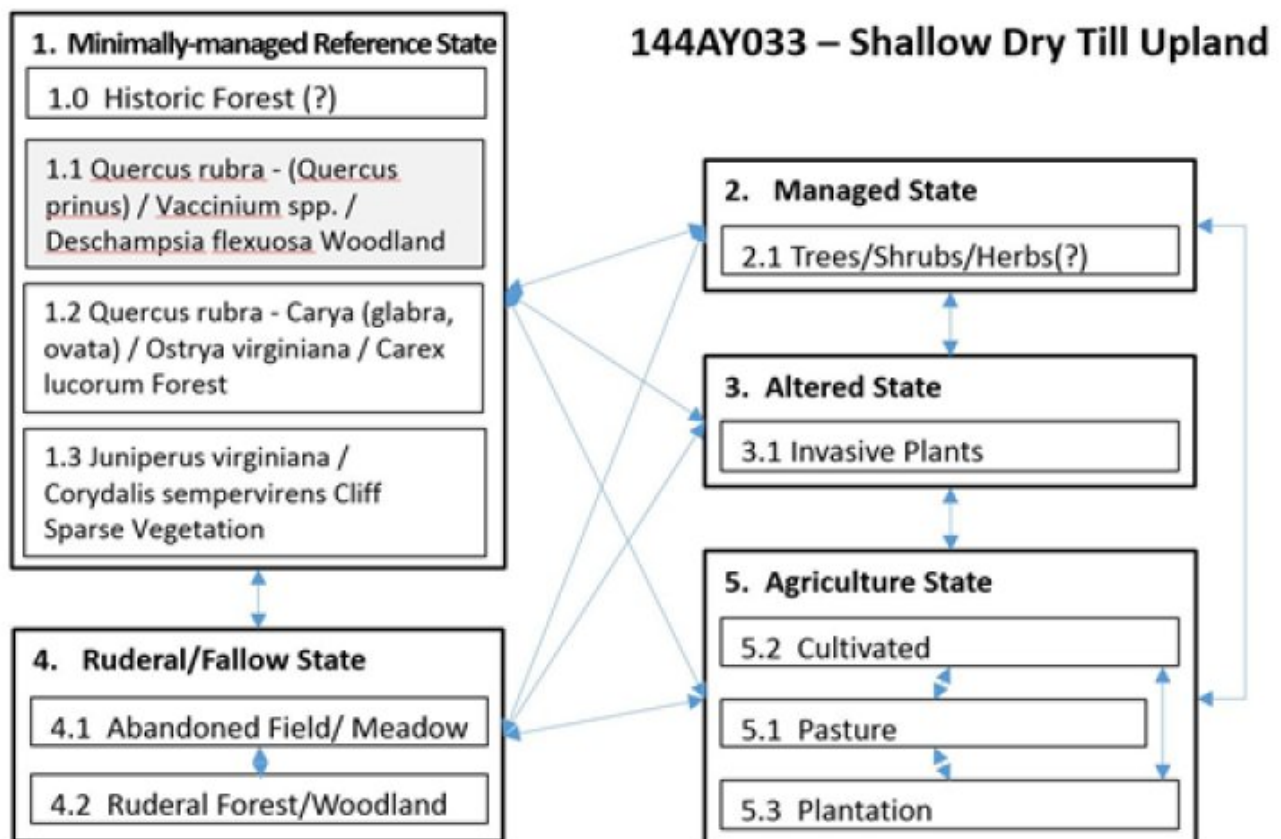


Figure 6. STM_144AY033_Shallow_Dry_Till_Upland

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 7. STM_144AY033_Shallow_Dry_Till_Upland

Other references

REFERENCES

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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:

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:
