

Ecological site F144AY016MA Very Wet Low Floodplain

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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 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 deep, coarse-silty, very poorly drained, alluvial soils on low floodplains of mostly small to medium sized river valleys but can also be found within large river valleys. These floodplains are subject annual flooding. Water is at or near the surface for much of the growing season. The representative soil is Saco and Wayland.

The reference plant community is considered to be an alluvial shrubland swamp. Alders are the most common shrub but other shrubs such as silky willow, common buttonbush, highbush blueberry, silky dogwood, winterberry, and steplebush may also be present. Tussock sedge may also be present. Red maple may occur but tree cover is low due to the very wet conditions.

Table 1. Dominant plant species

Tree	(1) <i>Acer rubrum</i>
Shrub	(1) <i>Alnus serrulata</i> (2) <i>Salix sericea</i>

Physiographic features

The site occurs on low floodplains and depressions of mostly small to medium sized river valleys but can also be found within large river valleys. These floodplains are subject annual flooding. Water is at or near the surface for much of the growing season.

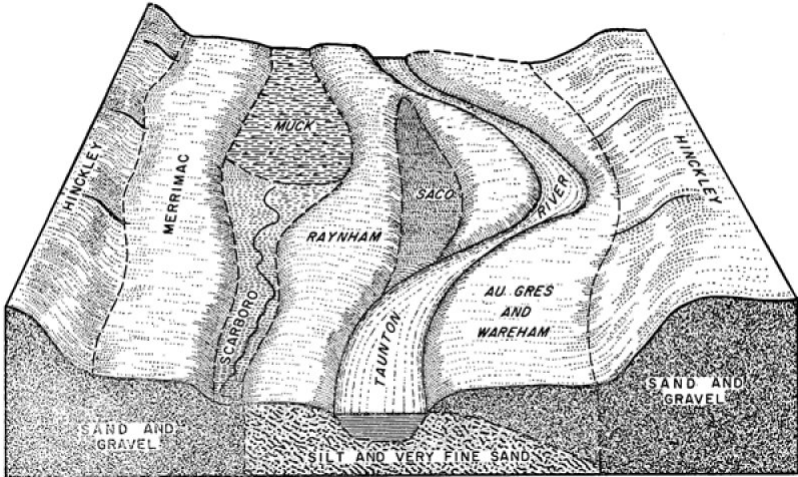


Figure 1. Very Wet Low Floodplain (Saco soils)

Table 2. Representative physiographic features

Landforms	(1) Flood plain (2) Depression
Flooding duration	Brief (2 to 7 days)
Flooding frequency	None to frequent
Slope	0–3%
Water table depth	0–8 cm
Aspect	Aspect is not a significant factor

Climatic features

Mean annual precipitation is 50 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 151 and 174, respectively.

Table 3. Representative climatic features

Frost-free period (average)	151 days
Freeze-free period (average)	174 days
Precipitation total (average)	1,270 mm

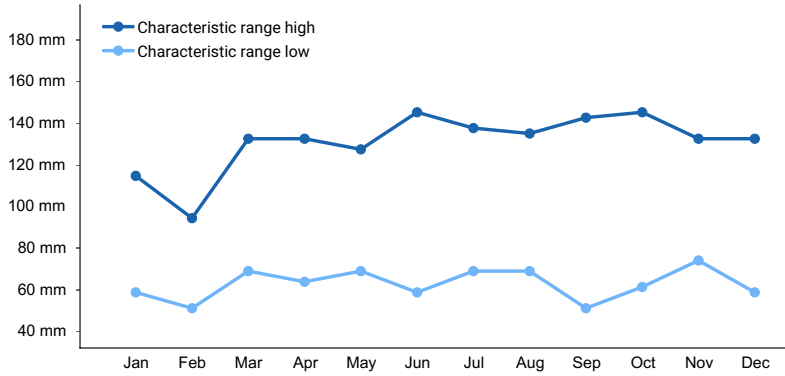


Figure 2. Monthly precipitation range

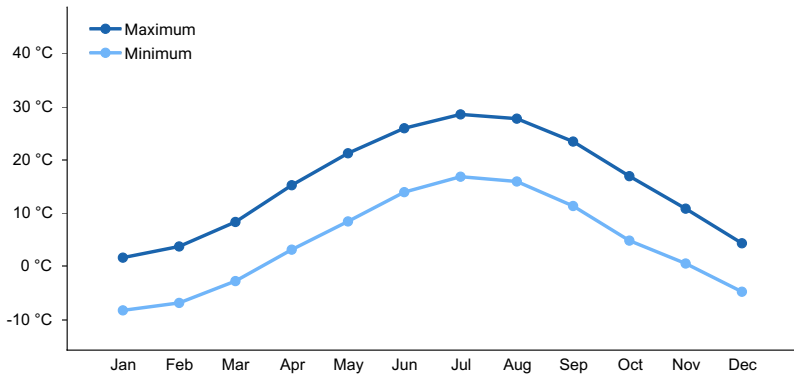


Figure 3. Monthly average minimum and maximum temperature

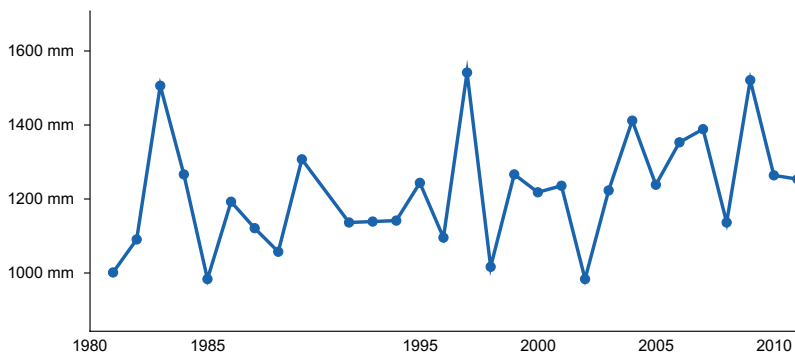


Figure 4. Annual precipitation pattern

Climate stations used

- (1) TROY L&D [USC00308600], Troy, NY
- (2) DANBURY [USC00061762], Bethel, CT
- (3) TAUNTON [USC00198367], Raynham, MA
- (4) STORRS [USC00068138], Storrs Mansfield, CT
- (5) MAYNARD 2 [USC00194580], Maynard, MA
- (6) POUGHKEEPSIE DUTCHESS CO AP [USW00014757], Wappingers Falls, NY

Influencing water features

Soil features

The site consists of very deep, very poorly drained soils formed in silty alluvium derived mostly from granite, gneiss, schist, shale and sandstone. Permeability is moderate in the silty layers and rapid or very rapid in the underlying sandy materials. The representative soils are Saco and Wayland. Soil pH in Saco ranges from strongly acid to neutral while Wayland ranges from strongly acid to moderately alkaline.

Table 4. Representative soil features

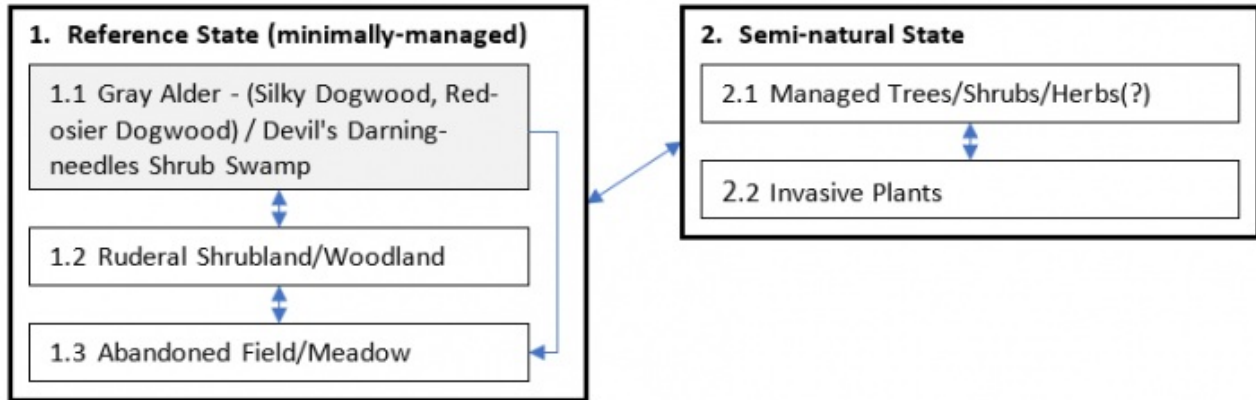
Parent material	(1) Alluvium–sandstone and shale
Surface texture	(1) Silt loam (2) Very fine sandy loam (3) Mucky silt loam
Drainage class	Very poorly drained
Permeability class	Moderately slow to slow
Soil depth	183 cm
Available water capacity (0-101.6cm)	17.78–22.86 cm
Soil reaction (1:1 water) (0-101.6cm)	5.1–8.4
Subsurface fragment volume ≤3" (Depth not specified)	5–30%
Subsurface fragment volume >3" (Depth not specified)	0–2%

Ecological dynamics

The reference plant community is considered to be an alluvial shrubland swamp. Alders are the most common shrub but other shrubs such as silky willow, common buttonbush, highbush blueberry, silky dogwood, winterberry, and steplebush may also be present. Tussock sedge may also be present. Red maple may occur but tree cover is low due to the very wet conditions.

State and transition model

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<i>Transition</i>	<i>Drivers/practices</i>
T1-2	Forest mgmt., Disturbance
R2-1	Restoration & <u>Mgmt.</u> , Forest Stand Improvement, Early Successional Habitat Development, Upland Wildlife <u>Mgmt.</u> , Invasive spp. Control, Plant establishment
CP2.1-2.2	Disturbance, Invasive species establishment
CP2.2-2.1	Invasive spp. Control, Forest mgmt..
CP1.3-1.2, CP1.2-1.1	Abandonment, succession
CP1.1-1.2/1.3, CP1.2-1.3,	Disturbance, Early Successional Habitat Development

State 1

Reference State (minimally-managed)

Alluvial Alder Thickets

Community 1.1

Gray Alder - (Silky Dogwood, Red-osier Dogwood) / Devil's Darning-needles Shrub Swamp

Community 1.2

Ruderal Wet Shrubland / Wet Woodland

Community 1.3

Abandoned Wet Field / Wet Meadow

Pathway CP1.1-1.2

Community 1.1 to 1.2

Disturbance

Pathway CP1.2-1.3
Community 1.1 to 1.3

Disturbance

Pathway CP1.2-1.1
Community 1.2 to 1.1

Abandonment, succession

Pathway CP1.2-1.3
Community 1.2 to 1.3

Disturbance

Pathway CP1.3-1.2
Community 1.3 to 1.2

Abandonment, succession

State 2
Semi-natural

Altered by human disturbance or management

Community 2.1
Managed [Trees]/Shrubs/Herbs(?)

Community 2.2
Invasive Plants

Pathway CP 2.1-2.2
Community 2.1 to 2.2

Disturbance, Invasive species establishment

Pathway CP2.2-2.1
Community 2.2 to 2.1

Invasive spp. Control, Vegetation mgmt..

Transition T1-2
State 1 to 2

Human disturbance with invasive plant establishment or Forest management

Restoration pathway R2-1
State 2 to 1

Plant removals, plantings, Invasive plant control, successional mgmt., Restoration & Mgmt, Forest Stand Improvement, Early Successional Habitat Development, Wildlife Mgmt, Invasive spp. Control, Plant establishment

Conservation practices

Wetland Wildlife Habitat Management
Early Successional Habitat Development/Management
Restoration and Management of Natural Ecosystems
Native Plant Community Restoration and Management
Invasive Plant Species Control

Additional community tables

Other references

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.

Approval

Nels Barrett, 5/01/2019

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:
