

Ecological site F144AY020MA

Very Wet Coastal Lake Plain

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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 (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

This site consists of deep, very poorly drained silty clayey soils formed in marine or glacio-lacustrine sediments and occupy bottomlands and basins. Representative soil is Maybid that is mapped along the coast.

The reference community is “red maple swamp” (Swain and Kearsley 2011) or “red maple-skunk cabbage” (Sperduto and Nichols 2011) with a broad variable composition. Red maple is the often the dominant tree with admixtures of white ash, American elm, white pine, hemlock and swamp white oak. Swamp azalea and sweet pepperbush form the predominant shrub layer. Herb layer is highly variable but can include many fern species, sensitive fern, royal fern, and marsh fern, in richer areas. Skunk cabbage is the most common herb.

A secondary community is the “coastal Atlantic white cedar swamp” (Swain and Kearsley 2011). Atlantic white cedar is the dominant with admixtures of red maple.

Other communities may be “shrub swamp” (Swain and Kearsley 2011) with sweet pepperbush, shrubby dogwoods, azaleas, and others; or “deep emergent marsh” (Swain and Kearsley 2011) consisting of tall graminoids such as cattails, common reed, bulrushes, lakeside sedge, and Canada bluejoint; or “shallow emergent swamp” (Swain and Kearsley 2011) consisting of Canada bluejoint, and many other sedges, rushes, and grasses.

Tree	(1) <i>Acer rubrum</i> (2) <i>Chamaecyparis thyoides</i>
Shrub	(1) <i>Rhododendron viscosum</i>
Herbaceous	Not specified

Physiographic features

The site occurs on level or nearly level lake plains, depressions, and marined terraces. Slope ranges from 0 to 3 percent. Water table depth is usually less than 3 inches. Ponding ranges from occasional to frequent.

Table 2. Representative physiographic features

Landforms	(1) Lake plain (2) Depression (3) Marine terrace
Ponding frequency	Occasional to frequent
Slope	0–3%
Water table depth	0–8 cm

Climatic features

Mean annual precipitation is 51 inches and is usually uniformly distributed throughout the year. Frost free and freeze free days average 138 and 169, respectively.

Table 3. Representative climatic features

Frost-free period (average)	138 days
Freeze-free period (average)	169 days
Precipitation total (average)	1,295 mm

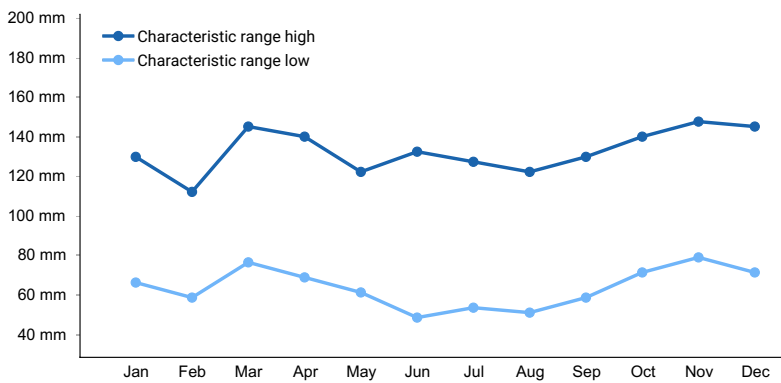


Figure 1. Monthly precipitation range

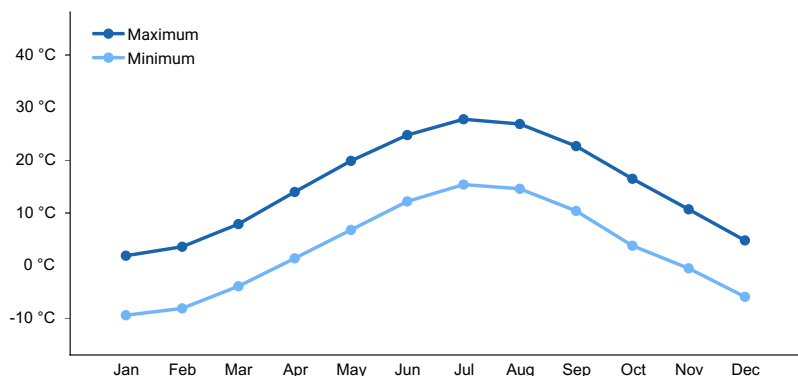


Figure 2. Monthly average minimum and maximum temperature

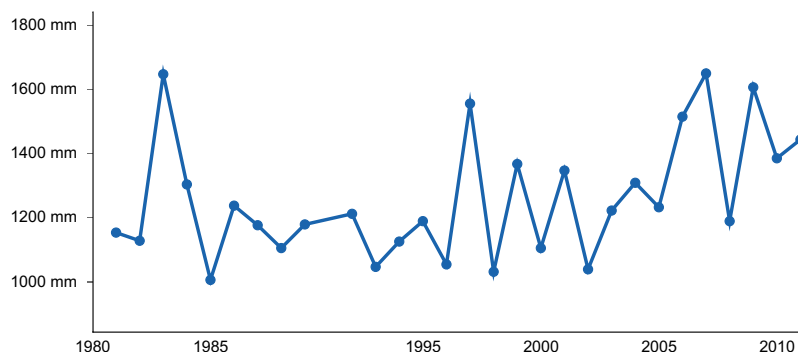


Figure 3. Annual precipitation pattern

Climate stations used

- (1) HAVERHILL [USC00193505], Haverhill, MA
- (2) EPPING [USC00272800], Fremont, NH
- (3) PLYMOUTH-KINGSTON [USC00196486], Plymouth, MA
- (4) GREENLAND [USC00273626], Greenland, NH
- (5) BEVERLY [USC00190593], Wenham, MA

Influencing water features

Soil features

The site consists of very deep, very poorly drained soils formed in lacustrine or marine sediments. Soils are mostly silt loams or silty clay loams. Representative soil is Maybid (coastal)

Table 4. Representative soil features

Surface texture	(1) Silt loam (2) Silty clay loam
Drainage class	Very poorly drained
Soil depth	183 cm
Available water capacity (0-101.6cm)	15.24–20.32 cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	5.1–7.3

Ecological dynamics

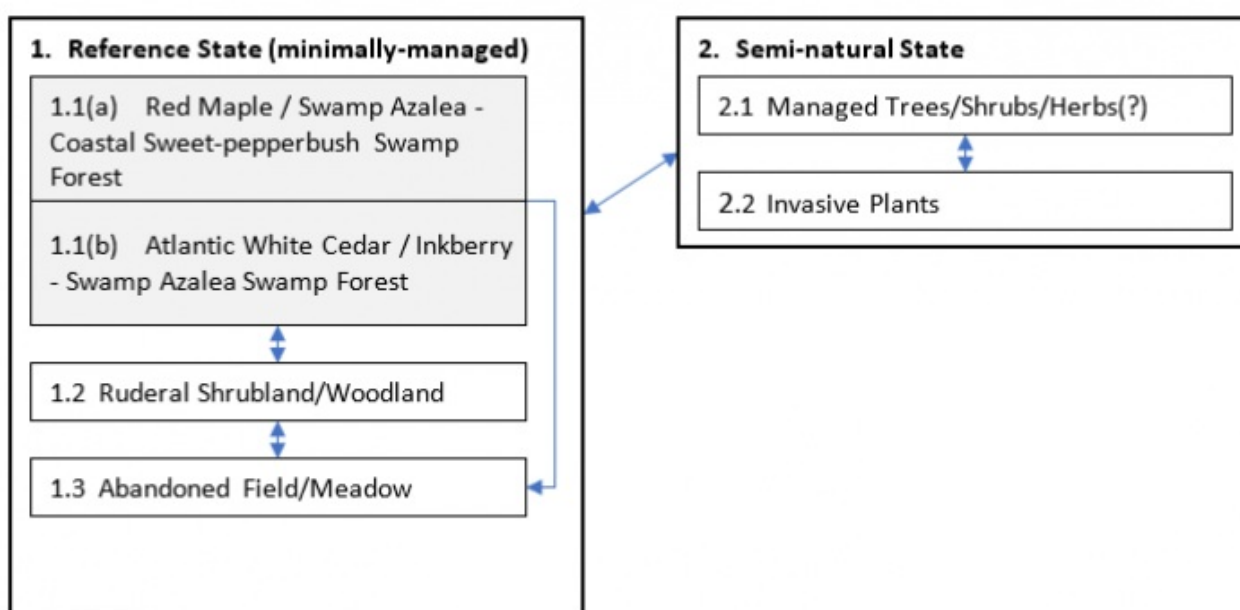
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State and transition model

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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)

Variable: Red Maple Swamp to more minerotrophic Atlantic White Cedar Swamp

Community 1.1

1.1(a) Red Maple / Swamp Azalea - Coastal Sweet-pepperbush Swamp Forest 1.1(b) Atlantic White Cedar / Inkberry - Swamp Azalea Swamp Forest

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

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.

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