

Ecological site RX141X304

Wet Clay Flat

Last updated: 10/03/2024

Accessed: 09/15/2026

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): 141X–Tug Hill Plateau

MLRA 141 is entirely in New York and makes up about 1,173 square kilometers (3,037 square kilometers). It consists of a relatively small but unique upland that lies just off the eastern end of Lake Ontario and west of the Black River Valley and Adirondack Mountain region. It is essentially a north- and east-facing glaciated cuesta scarp and is underlain by thick Wisconsin till and small areas of outwash. Most of the plateau is woodland, so forestry and recreation are the primary uses, but small isolated dairy operations and hobby farms are located around the perimeter. The area is bordered on the east by the Black River Valley, on the north by the St. Lawrence Lowland, on the west by the Ontario Lowland, and on the south by the Upper Mohawk Valley. The northern and eastern boundaries of MLRA 141 are distinct where they contact the physiographically dissimilar southwestern part of MLRA 142 (St. Lawrence-Champlain Plain). The western and southern boundaries are also distinct where they contact the physiographically dissimilar MLRA 101 (Ontario-Erie Plain and Finger Lakes Region)

Ecological site concept

This site occurs in gently sloping areas near the bottom of watersheds where water saturates glaciolacustrine deposits for much of the growing season. Soils are poorly- and very poorly-drained with clayey textures and parent materials. The water table is seasonally high (within 12 inches of the surface) and typically dries out in late summer and fall. This site is typically drier than the Clay site (401) and may be ponded in depressions. Mixed hardwoods and softwoods dominate the reference community, including black and red spruce, red maple, brown ash, and balsam fir.

Similar sites

RX141X401	Clay This site is typically drier than the Clay site (401) and may be ponded in depressions. Similar vegetative composition may be present among both sites.
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Table 1. Dominant plant species

Tree	(1) <i>Acer rubrum</i> (2) <i>Picea mariana</i>
Shrub	(1) <i>Alnus incana</i> ssp. <i>rugosa</i> (2) <i>Cephalanthus occidentalis</i>
Herbaceous	(1) <i>Osmunda cinnamomea</i> (2) <i>Moehringia lateriflora</i>

Legacy ID

Physiographic features

This site occurs on poorly drained uplands or in depressions associated with gently sloping areas near the bottom of watersheds where water saturates glaciolacustrine deposits for much of the growing season. Overall topographic relief is very flat in this system though small tip-up mounds and depressions can occur from windthrow and often create small pockets with vegetation more typical of upland or swamp forest

Table 2. Representative physiographic features

Landforms	(1) Depression
Flooding frequency	None
Ponding frequency	None to frequent
Elevation	20 – 520 m
Water table depth	0 – 20 cm
Aspect	Aspect is not a significant factor

Climatic features

Throughout the year precipitation is evenly distributed around most of this area with slightly less rainfall occurring around the lower margins of the plateau. Rainfall occurs as high-intensity, convective thunderstorms during the summer. Lake-effect snowfall is heavy from late autumn to early spring with the summit of the plateau having the lowest temperatures and the shortest freeze-free periods.

Climate stations Watertown and Old Forge are adjacent to the MLRA and were used to tabulate additional representative climate data.

Table 3 Representative climatic features

Frost-free period (characteristic range)	90-120 days
Freeze-free period (characteristic range)	130-160 days
Precipitation total (characteristic range)	1,190-1,350 mm
Frost-free period (actual range)	90-130 days
Freeze-free period (actual range)	120-160 days
Precipitation total (actual range)	1,120-1,450 mm
Frost-free period (average)	110 days

Freeze-free period (average)	140 days
Precipitation total (average)	1,270 mm

- (1) BOONVILLE 4 SSW [USC00300785], Boonville, NY
- (2) CAMDEN [USC00301110], Camden, NY
- (3) WATERTOWN [USC00309000], Watertown, NY
- (4) OLD FORGE [USC00306184], Eagle Bay, NY

Influencing water features

Soils often have an impermeable or nearly impermeable clay layer that impedes waterflow. This favors flooding or ponding in the spring or after heavy rains. It also restricts subsurface water movement into the system and slows the growth of roots through it. Both of these factors lead to water deficits for the vegetation in the late summer and fall. These fluctuating moisture levels can lead to complexes of forest upland and wetland species occurring within this system.

Soil features

Table 4. Representative soil features

Parent material	(1) Glaciolacustrine deposits (2) Till – acid shale
Surface texture	(1) Clay (2) Clay
Drainage class	Very poorly drained to poorly drained
Permeability class	Very slow
Soil depth	70 – 180 cm
Surface fragment cover <=3"	Not specified
Surface fragment cover >3"	Not specified
Available water capacity (10.2-15.2cm)	Not specified
Soil reaction (1:1 water) (9.1-21.3cm)	Not specified

Subsurface fragment volume <=3" (5.1-45.7cm)	Not specified
Subsurface fragment volume >3" (7.6cm)	Not specified

Ecological dynamics

Caveat: The vegetation information contained in this section and is only provisional, based on concepts, and future projects support validation through field work. *] The vegetation groupings described in this section are based on the terrestrial ecological system classification and vegetation associations developed by NatureServe (Comer 2003) and localized associations provided by the New York Natural Heritage Program (Edinger et al. 2014).

This site is dominated by mixed hardwood and softwood species including red and black spruce, balsam fir, larch, red maple and brown ash. It is often logged, which sets the stand through a series of phases, beginning with herbaceous colonizers, then dense spruce and balsam fir saplings, and eventually to mature spruce-fir forest. Within 100 years, any balsam fir dies out and longer-lived species dominate the mature forest. Similar community dynamics occur within stands on this site as blowdowns or spruce budworm open up small patches of mature overstory trees for establishment by herbs and conifer saplings.

In some areas this site has been converted to perennial grass hayland.

State and transition model

Additional community tables

Table 5. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 6. Community 2.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Table 7. Community 2.2 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production ()	Foliar Cover (%)
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Inventory data references

Future work is needed, as described in a future project plan, to validate the information presented in this provisional ecological site description. Future work includes field sampling, data collection and analysis by qualified vegetation ecologists and soil scientists. As warranted, annual reviews of the project plan can be conducted by the Ecological Site Technical Team. A final field review, peer review, quality control, and quality assurance reviews of the ESD are necessary to approve a final document.

Other references

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Contributors

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Approval

Greg Schmidt, 10/03/2024

Acknowledgments

Nels Barrett and Nick Butler provided considerable review of this ecological site concept.

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	09/15/2026
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:
