

Ecological site RX141X701

Shallow Till

Last updated: 10/03/2024

Accessed: 05/12/2025

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 where soils are shallow over bedrock, usually on upper slopes and summit positions which shed water. Soils are well-drained to excessively-drained. Slopes can be gentle to very steep. The plant community is softwood-dominated, usually with sparse understory cover. Red spruce, balsam fir, red maple and/or white pine are often abundant in the overstory. Northern white cedar may be present in areas with calcareous bedrock.

Table 1. Dominant plant species

| | |
|------------|--|
| Tree | (1) <i>Picea rubens</i> (2) <i>Abies balsamea</i> |
| Shrub | Not specified |
| Herbaceous | Not specified |

Legacy ID

F141XY701NY

Physiographic features

Table 2. Representative physiographic features

| | |
|-------------------|--|
| Landforms | (1) Bench (2) Hill (3) Ridge (4) Till plain |
| Elevation | 75–549 m |
| Water table depth | 183 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) | 92-124 days |
| Freeze-free period (characteristic range) | 129-159 days |
| Precipitation total (characteristic range) | 1,194-1,346 mm |
| Frost-free period (actual range) | 86-131 days |
| Freeze-free period (actual range) | 119-164 days |
| Precipitation total (actual range) | 1,118-1,448 mm |
| Frost-free period (average) | 108 days |
| Freeze-free period (average) | 143 days |
| Precipitation total (average) | 1,270 mm |

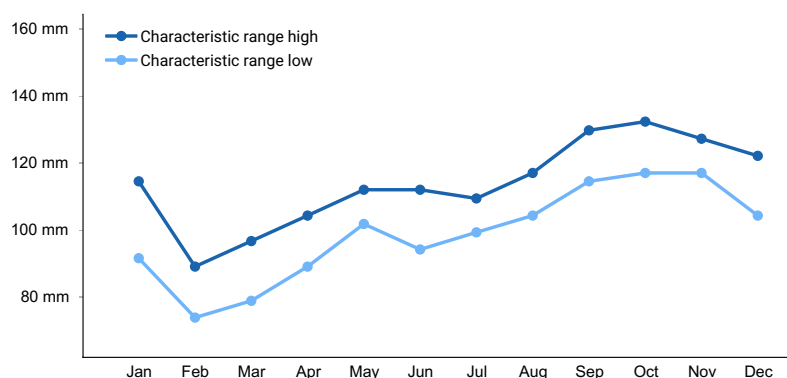


Figure 1. Monthly precipitation range

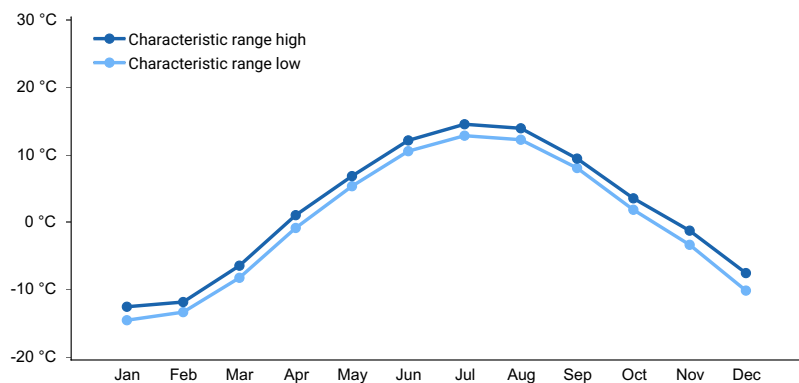


Figure 2. Monthly minimum temperature range

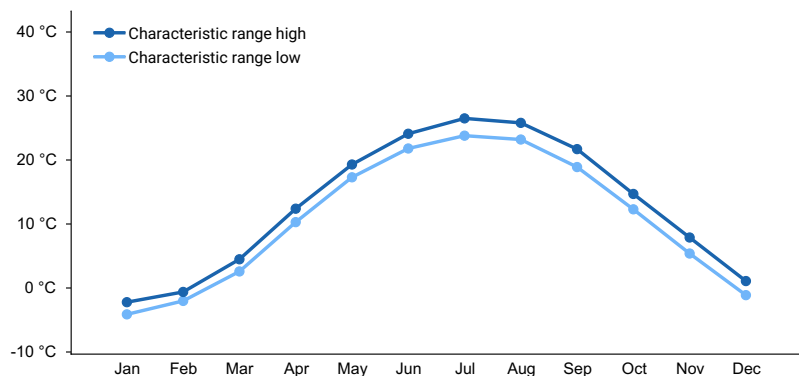


Figure 3. Monthly maximum temperature range

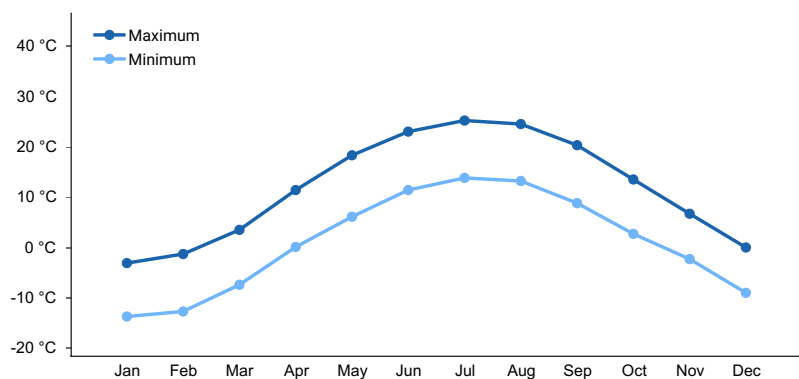


Figure 4. Monthly average minimum and maximum temperature

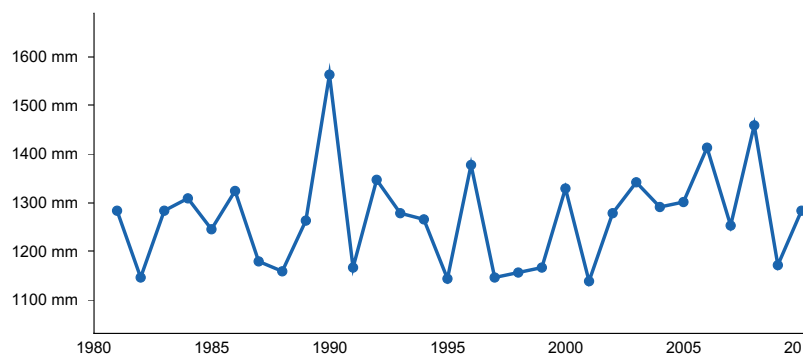


Figure 5. Annual precipitation pattern

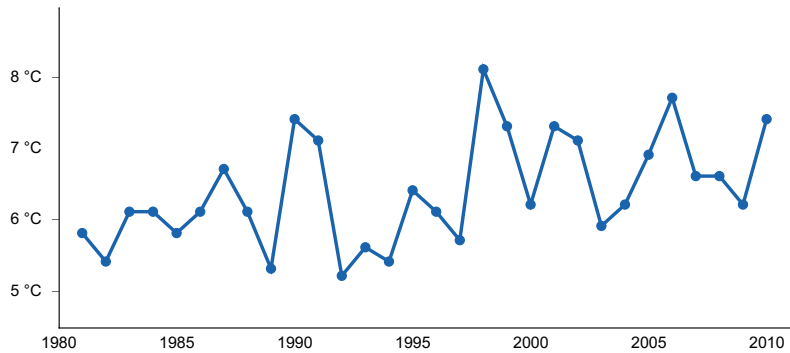


Figure 6. Annual average temperature pattern

Climate stations used

- (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

Soil features

Table 4. Representative soil features

| | |
|--|--|
| Parent material | (1) Till–sandstone (2) Till–shale (3) Till–slate |
| Surface texture | (1) Channery loam |
| Drainage class | Somewhat excessively drained |
| Permeability class | Very slow |
| Soil depth | 36–51 cm |
| Surface fragment cover <=3" | 0% |
| Surface fragment cover >3" | 0% |
| Available water capacity (5.1cm) | Not specified |
| Soil reaction (1:1 water) (11.4-15.2cm) | Not specified |
| Subsurface fragment volume <=3" (61-101.6cm) | Not specified |
| Subsurface fragment volume >3" (12.7-35.6cm) | Not specified |

Ecological dynamics

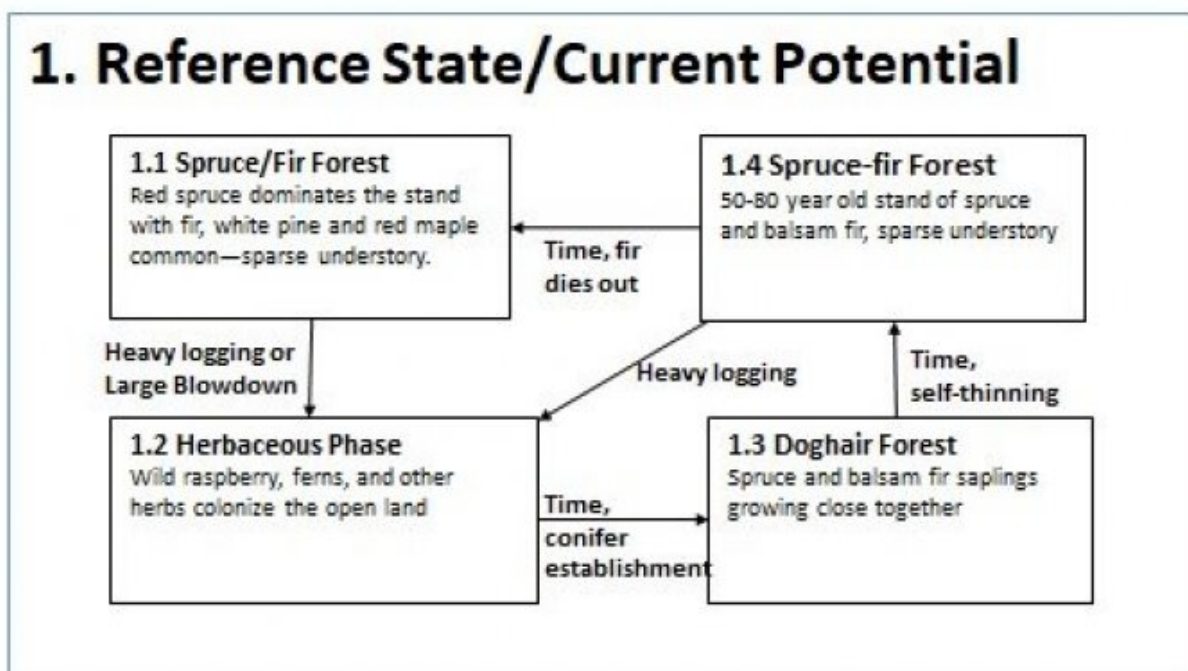
[Caveat: The vegetation information contained in this section and is only provisional, based on concepts, and future projects support validation through field work. *] The vegetation groupings described in this section are based on the terrestrial ecological system classification and vegetation associations 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 softwood species, particularly red spruce. Balsam fir, white pine, and red maple are commonly found on the site, with lesser amounts of black spruce, white spruce, hemlock, yellow birch, beech, and sugar maple.

Disturbances include blowdowns, insect damage, logging, and occasional fire. Following disturbance, the site proceeds through successional phases before returning to the reference community. These shallow soils are not often cultivated. Productivity is expected to be low on these shallow sites, though further study is required to fully develop the plant community dynamics and state-and-transition model.

State and transition model

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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

Christopher Mann

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 | 05/12/2025 |
| Approved by | Greg Schmidt |
| 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:**
