

Ecological site RX141X601

Dry Sand

Last updated: 10/03/2024

Accessed: 05/10/2025

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 on sandy soils typically associated with eskers, deltas, kame terraces, outwash plains, or sandy till deposits. Soils are typically very deep and well- to excessively-drained. Slopes range from gentle to very steep. Red pine and white pine are abundant, often with a mixture of other conifer species. Red maple, paper birch and bigtooth aspen are common associates. This site is often upslope of the Sandy toeslope site, which has a seasonally-high water table on what would otherwise be very similar soils.

Table 1. Dominant plant species

Tree	(1) <i>Pinus strobus</i> (2) <i>Acer saccharum</i>
Shrub	(1) <i>Viburnum dentatum</i>
Herbaceous	(1) <i>Prunus virginiana</i> (2) <i>Aralia nudicaulis</i>

Legacy ID

F141XY601NY

Physiographic features

Table 2. Representative physiographic features

Landforms	(1) Valley > Outwash delta (2) Valley > Kame terrace (3) Delta (4) Outwash plain (5) Terrace
Runoff class	Very low to medium
Elevation	246–2,201 ft
Water table depth	72 in
Aspect	Aspect is not a significant factor

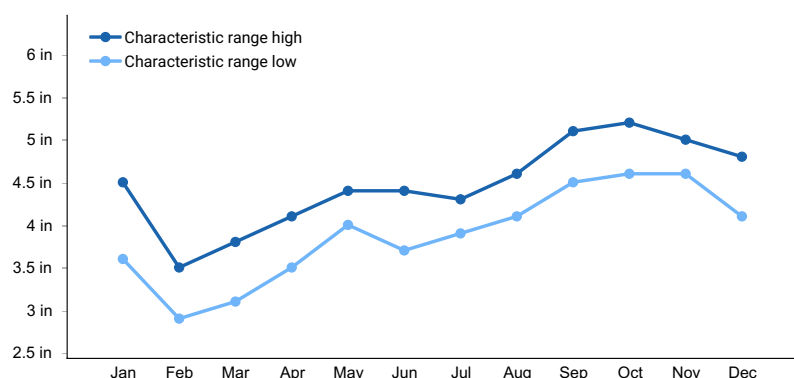
## Climatic features

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)	47-53 in
Frost-free period (actual range)	86-131 days
Freeze-free period (actual range)	119-164 days
Precipitation total (actual range)	44-57 in
Frost-free period (average)	108 days
Freeze-free period (average)	143 days
Precipitation total (average)	50 in



**Figure 1. Monthly precipitation range**

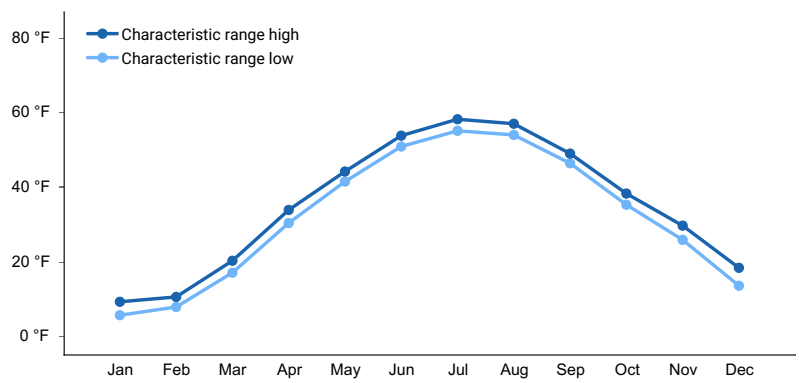


Figure 2. Monthly minimum temperature range

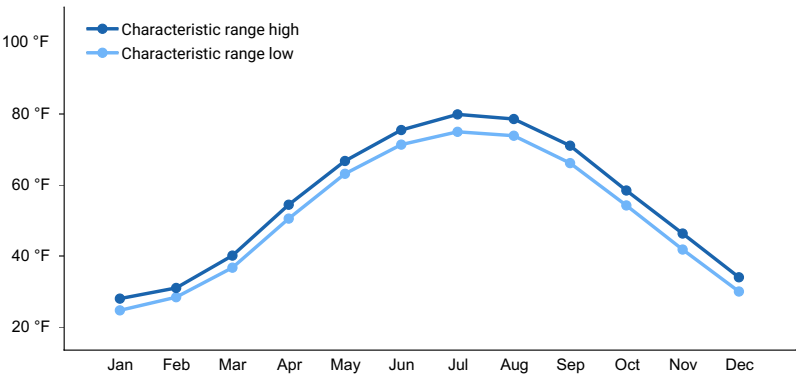


Figure 3. Monthly maximum temperature range

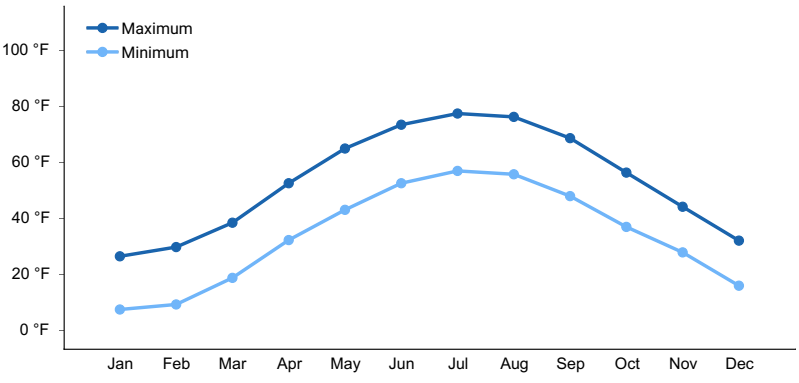


Figure 4. Monthly average minimum and maximum temperature

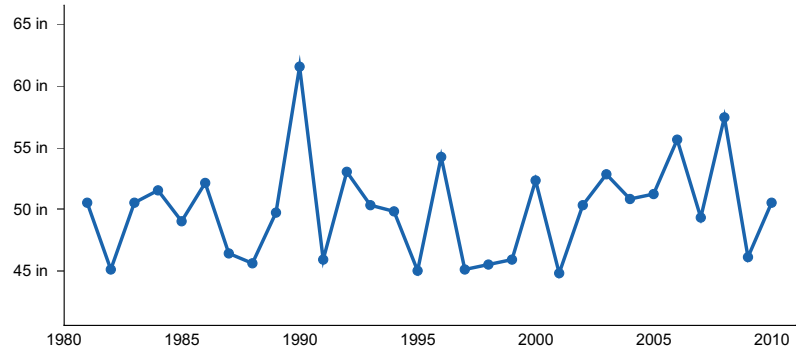


Figure 5. Annual precipitation pattern

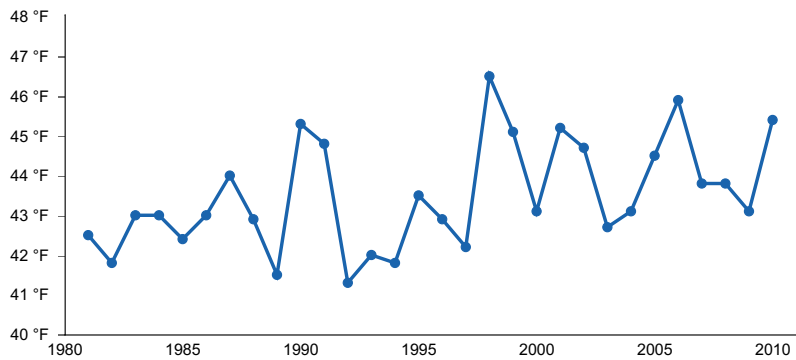


Figure 6. Annual average temperature pattern

### 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) Glaciofluvial deposits–granite (2) Glaciofluvial deposits–limestone (3) Glaciofluvial deposits–marble (4) Glaciofluvial deposits–gneiss (5) Glaciofluvial deposits–schist
Surface texture	(1) Gravelly sand
Drainage class	Somewhat excessively drained to excessively drained
Permeability class	Slow to moderately rapid
Soil depth	72 in
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0%
Available water capacity (1-4in)	Not specified
Soil reaction (1:1 water) (3.5-8.4in)	Not specified
Subsurface fragment volume <=3" (0-37in)	Not specified
Subsurface fragment volume >3" (0-16in)	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 typically dominated by red pine, white pine, and/or red spruce. Hemlock and other softwood species may

also be abundant, and scattered hardwoods may be present, particularly in younger stands. The understory is generally sparse.

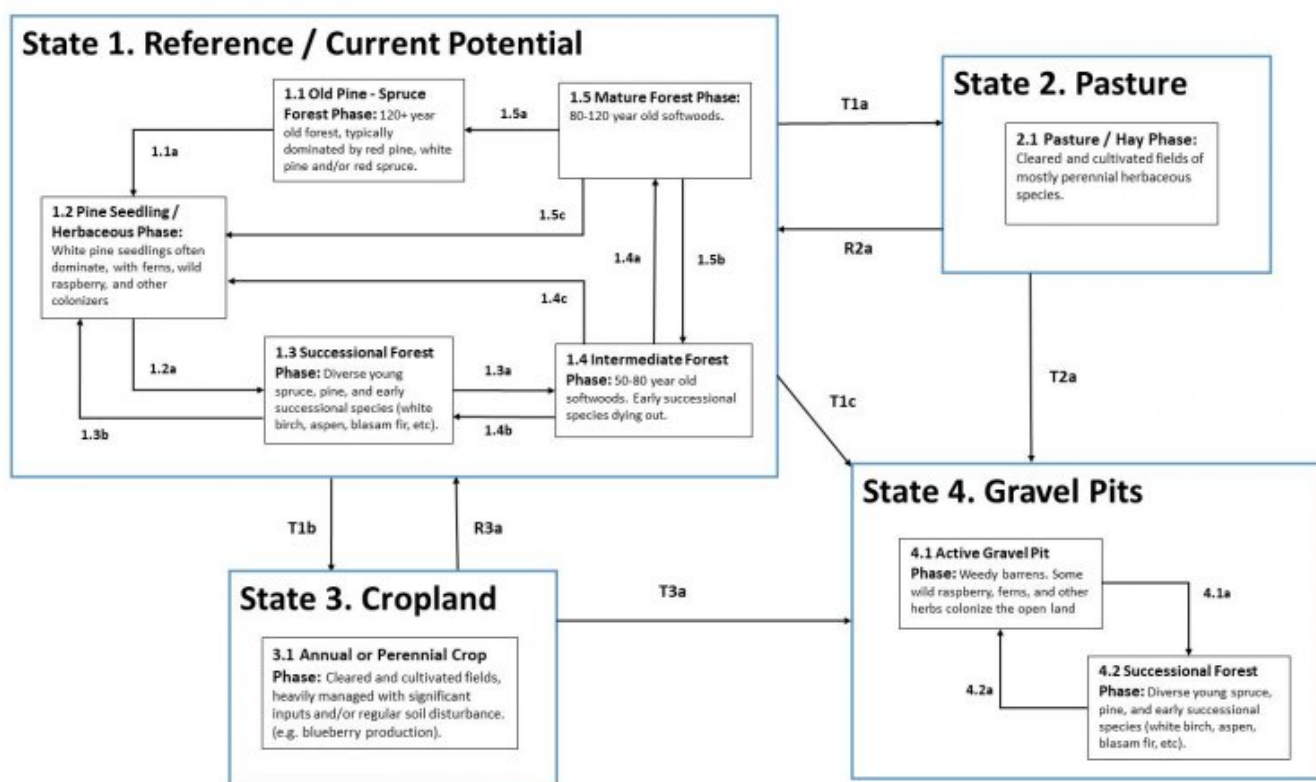
On gentler slopes, this site has been cleared and cultivated for pasture/hayland or crop production. Blueberries are particularly suited to these sandy soils.

Gravel and sand mining are common on this site, and often accompanied by heavy logging to remove timber prior to soil excavation. Following cutting, early successional species such as fir, white birch, pin cherry, and aspen may enter the community, but they die out as the forest reaches maturity within about 80 years.

Further study is required to understand plant community dynamics on this site.

## State and transition model

### F141XY601ME – Dry Sand



## 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

Comer, P., D. Faber-Langendoen, R. Evans, S. Grawler, C. Josse, G. Kittel, S. Menard, M. Pyne, M. Reid, K. Schultz, K. Snow, and J. Teague. 2003. Ecological Systems of the United States: A Working Classification of U.S. Terrestrial Systems. NatureServe, Arlington, Virginia

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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	05/10/2025
Approved by	Greg Schmidt
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

## Indicators

1. **Number and extent of rills:**

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2. **Presence of water flow patterns:**

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3. **Number and height of erosional pedestals or terracettes:**

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4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

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5. **Number of gullies and erosion associated with gullies:**

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6. **Extent of wind scoured, blowouts and/or depositional areas:**

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7. **Amount of litter movement (describe size and distance expected to travel):**

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8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

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9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

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10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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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:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth ( in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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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:**

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