

Ecological site F146XY084ME

Silty

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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.

Ecological site concept

The soils of this site are deep, silty loams with very few rock fragments. These soils formed in lakebed sediments in areas where glacial meltwater once collected. As glacial lakes dried out, some areas were bisected by streams and rivers which persist today. In these cases, this site occurs on stream terraces. This site is no longer flooded or ponded, and the former lakebeds are now dry and moderately well to well drained.

Plant communities are conifer-dominated mixedwood forests. Common conifer species on the site are white pine, red spruce, balsam fir, hemlock, and northern white cedar. Hardwood species are red maple, yellow birch, white birch, bigtooth aspen, and black cherry.

Abandoned cropland may transition to pine, spruce-fir, or reference conifer-dominated mixedwood forests.

This site is subject to logging, wind, insects and disease, and other natural and human disturbances resulting in a variety of alternative states.

When managed for timber production, several different ecological states are possible. The pine forest state, reference conifer-dominated mixedwood state, and spruce-fir state are managed to maintain dominance of their respective timber species, and to facilitate profitable harvests along predictable timelines. Hemlock forests may also result from logging practices, though these are typically less-desirable and may result from selective harvest of more valuable species, leaving the hemlock behind. As hemlock increases on the site, it inhibits the establishment of other species by shading, reducing soil moisture availability to other plants, and especially by acidifying the soil.

With sufficient economic inputs, any of the states that occur on this site may transition from one to another, however, due to cost limitations, forests are typically managed for whatever timber species are currently present on the site.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on old lakebed sediments from ponded glacial meltwater. As glacial lakes dried out, some were bisected by streams and rivers which persist today. In these cases, this site occurs on stream terraces. This site is no longer flooded or ponded, and can be found at elevations up to 2000 feet.

Table 2. Representative physiographic features

Landforms	(1) Lakebed (2) Stream terrace
Flooding frequency	None
Ponding frequency	None
Elevation	6–610 m
Slope	0–15%
Water table depth	46 cm
Aspect	Aspect is not a significant factor

### Climatic features

The climate of this site is characterized by cold, snowy winters, and cool summers. Annual precipitation ranges from 34 to 51 inches. Precipitation is nearly equally distributed throughout the year, with slightly more moisture falling in June-October. During winter months, and sometimes fall and spring, cold winds from the north bring severe weather events. The effects of a relatively short growing season are somewhat mitigated by long summer days associated with the high latitudes of the region. Occasionally high winds, microbursts, or freezing rain events damage vegetation over small portions of the landscape.

Table 3. Representative climatic features

Frost-free period (average)	100 days
Freeze-free period (average)	129 days
Precipitation total (average)	1,016 mm

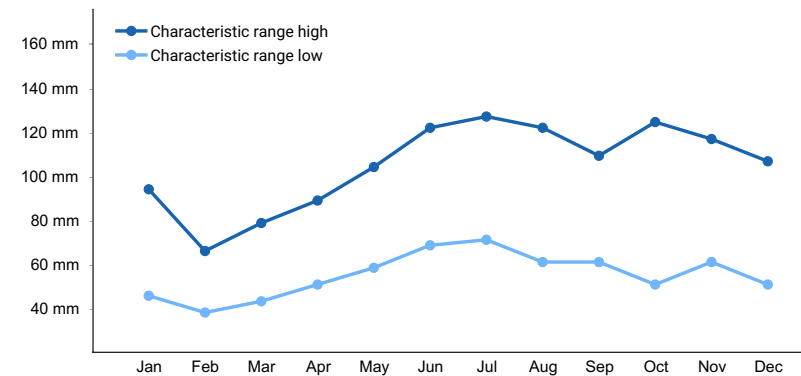


Figure 1. Monthly precipitation range

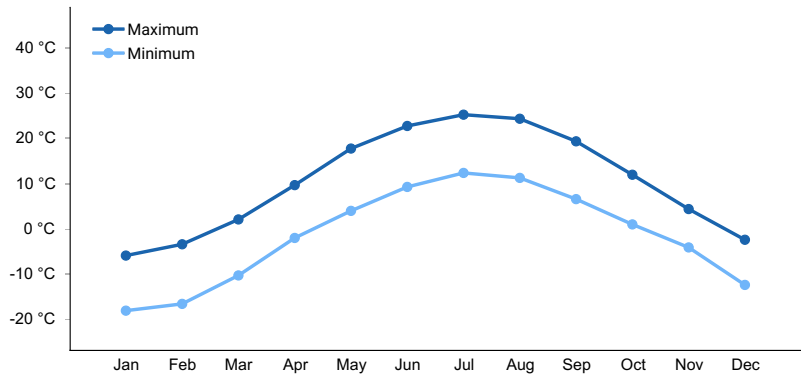
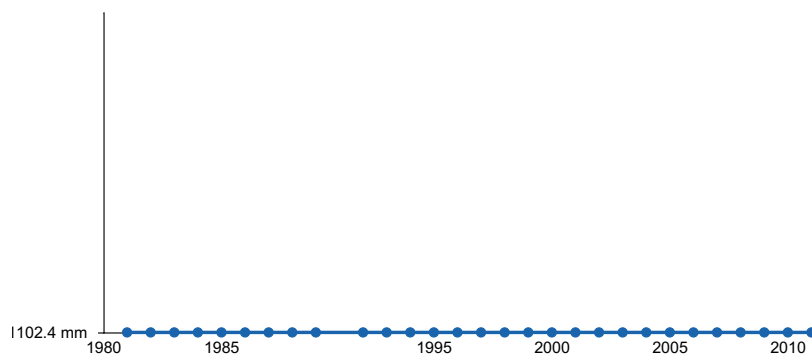


Figure 2. Monthly average minimum and maximum temperature



**Figure 3. Annual precipitation pattern**

## Climate stations used

- (1) ALLAGASH [USC00170200], Saint Francis, ME
- (2) CARIBOU MUNI AP [USW00014607], Caribou, ME
- (3) BRIDGEWATER [USC00170833], Bridgewater, ME
- (4) FT KENT [USC00172878], Fort Kent, ME
- (5) HOULTON 5N [USC00173944], Houlton, ME
- (6) PRESQUE ISLE [USC00176937], Presque Isle, ME
- (7) HOULTON INTL AP [USW00014609], Houlton, ME

## Influencing water features

This site is not typically influenced by streams or wetlands.

## Soil features

The soils of this site are deep, silty loams with very few rock fragments. These soils formed in lakebed sediments in areas where glacial meltwater once collected. The former lakebeds are now dry and moderately well to well drained. Soil pH ranges broadly from 3.6 to 6.5, and water-holding capacity ranges from 4 to 8.9 inches of water in the upper 40 inches of soil. The soil moisture regime is udic and the soil temperature regime is frigid.

**Table 4. Representative soil features**

Parent material	(1) Glaciolacustrine deposits–calcareous siltstone
Surface texture	(1) Silt loam
Family particle size	(1) Loamy
Drainage class	Moderately well drained to well drained
Soil depth	165 cm
Surface fragment cover ≤3"	0%
Surface fragment cover >3"	0%
Available water capacity (0-101.6cm)	10.16–22.61 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	3.6–6.5

Subsurface fragment volume <=3" (Depth not specified)	0–12%
Subsurface fragment volume >3" (Depth not specified)	0%

## Ecological dynamics

Plant communities are conifer-dominated mixedwood forests. Common conifer species on the site are white pine, red spruce, balsam fir, hemlock, and northern white cedar. Hardwood species are red maple, yellow birch, white birch, bigtooth aspen, and black cherry.

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## State and transition model

### Other references

Gawler, S. and A. Cutko. 2010. Natural Landscapes of Maine: A Guide to Natural Communities and Ecosystems. Maine Natural Areas Program, Maine Department of Conservation, Augusta, Maine.

### Contributors

Jamin Johanson

### Acknowledgments

Nick Butler and Carl Bickford made significant contributions to the development of this 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	
Approved by	
Approval date	

## 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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