

## Ecological site F146XY061ME Shallow Loamy Till

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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

This site occurs where soils are shallow over bedrock, often with small areas of bedrock protruding through the soil. It is found on all bedrock types in the region on many landforms including ridges, hilltops, hill shoulders, drumlins and till plains. The site is somewhat excessively drained and relatively dry soil conditions overall. The plant community is a softwood-dominated mixed wood forest with sparse understory species. Red spruce, balsam fir, hemlock and/or white pine dominate the overstory, with red maple and American beech as common hardwood species. Northern white cedar may be present on calcareous bedrock where soil pH is around 6.0 or higher. Club mosses, starflower, wild sarsaparilla, and intermediate woodfern are common understory species. In exposed areas, the shallow rooting zone may result in significant quantities of downed wood and snags on this site.

This site is subject to cultivation, logging, wind, insects and disease, and other natural and human disturbances resulting in a variety of alternative states. Sites that are cleared and cultivated are typically those with soil pH greater than 6.0. Abandoned cropland may remain as open hay land, or transition to pine, spruce-fir, or reference mixedwood forests.

When managed for timber production, several different ecological states are possible. The pine forest state, reference mixed conifer state, and spruce-fir state are managed to maintain dominance of their respective conifer 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.

### Associated sites

F146XY081ME	<p><b>Loamy Acidic Till</b> This site often grades into the Loamy Acidic Till site as soils become deeper. Typically the Shallow Loamy Till site is upslope from the Loamy Acidic Till site.</p>
F146XY082ME	<p><b>Loamy Calcareous Till</b> This site can grade into the Loamy Calcareous Till site as soils become deeper. Typically the Shallow Loamy Till site occurs upslope from the Loamy Calcareous Till site.</p>

### Similar sites

F146XY084ME	<p><b>Silty</b> These two sites have similar species composition and plant community dynamics, however soil depth and drainage are significantly different. These differences are likely to be reflected in the understory species and site interpretations, such as site index.</p>
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Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

## Physiographic features

This site occurs where soils are shallow over bedrock, often with small areas of bedrock protruding through the soil. It is commonly found on ridges, hilltops, and hill shoulders, but may also be found on drumlins and till plains. Slopes are usually 8-25 percent, but can range from 0-45 percent. The site is excessively drained with relatively dry soil conditions overall.

**Table 2. Representative physiographic features**

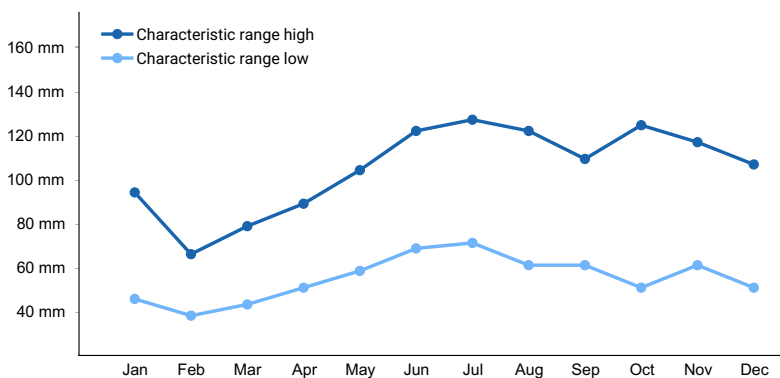
Landforms	(1) Ridge (2) Hill (3) Till plain
Flooding frequency	None
Ponding frequency	None
Elevation	27–762 m
Slope	0–25%
Aspect	Aspect is not a significant factor

## 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**

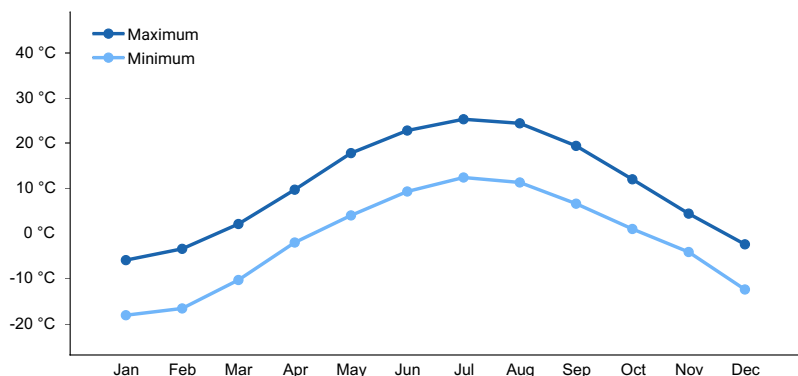


Figure 2. Monthly average minimum and maximum temperature

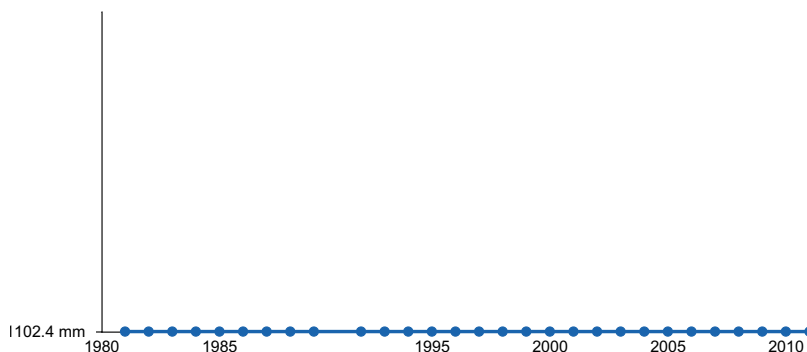


Figure 3. Annual precipitation pattern

### Climate stations used

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

### Influencing water features

Due to its landscape position, this site is not affected by streams or wetlands.

### Soil features

The soils of this site are shallow over bedrock, often with small areas of bedrock protruding through the soil. Rock fragments are typically not found on the soil surface, but they are common in the soil and tend to increase in volume with depth. Total soil depth ranges from 10-23 inches resulting in low water holding capacity. This site is somewhat excessively drained with relatively dry soil conditions overall. This site exhibits a broad range in soil pH associated with various bedrock types, however, the shallow, dry growing conditions result in similar site potential for plant community dynamics. The soil moisture regime is udic, and the soil temperature regime is frigid.

Table 4. Representative soil features

Parent material	(1) Melt-out till–phyllite (2) Subglacial till–slate (3) Supraglacial meltout till–limestone and shale
Surface texture	(1) Silt loam (2) Channery silt loam (3) Very channery silt loam

Family particle size	(1) Loamy
Drainage class	Somewhat excessively drained
Soil depth	25–58 cm
Surface fragment cover <=3"	0%
Surface fragment cover >3"	0–2%
Available water capacity (0-101.6cm)	3.81–14.73 cm
Calcium carbonate equivalent (0-101.6cm)	0%
Electrical conductivity (0-101.6cm)	0–2 mmhos/cm
Sodium adsorption ratio (0-101.6cm)	0
Soil reaction (1:1 water) (0-101.6cm)	3.6–7.8
Subsurface fragment volume <=3" (Depth not specified)	0–34%
Subsurface fragment volume >3" (Depth not specified)	0–18%

## Ecological dynamics

The plant community is a softwood-dominated mixed wood forest with sparse understory species. Red spruce, balsam fir, hemlock and/or white pine dominate the overstory, with red maple and American beech as common hardwood species. Northern white cedar may be present on calcareous bedrock where soil pH is around 6.0 or higher. Club mosses, starflower, wild sarsaparilla, and intermediate woodfern are common understory species. In exposed areas, the shallow rooting zone may result in significant quantities of downed wood and snags on this site.

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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

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## 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:**

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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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