

Ecological site F146XY072ME

Loamy Over Sandy

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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 on deep, well-drained and moderately well-drained sandy soils that have a thick loamy surface layer. These soils formed as relatively coarse sediments from fast-moving glacial meltwater were overlain by finer deposits in lower energy water. These landforms are flat to moderately sloping outwash plains, outwash terraces, and stream terraces. Although this site is no longer flooded, it can have a seasonally-high water table within 1-3 feet of the soil surface from November to April.

Much of this site is considered prime farmland for growing crops. Where native vegetation is present, hardwood species predominate, with some conifers in the overstory a diverse and productive understory. Common hardwood species are red maple, sugar maple, yellow birch, white birch, bigtooth aspen, and black cherry.

Abandoned cropland may transition to pine, spruce-fir, or reference hardwood-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 hardwood-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.

Associated sites

| | |
|-------------|---|
| F146XY071ME | Sandy This site grades into the Sandy site as soil textures become coarser. |
|-------------|---|

Similar sites

| | |
|-------------|--|
| F146XY071ME | Sandy These sites occur on similar landforms, but the Sandy site has coarser soil textures and drier soil drainage classes, resulting in greater conifer abundance than the Loamy over Sandy site. |
|-------------|--|

Table 1. Dominant plant species

| | |
|------|---------------|
| Tree | Not specified |
|------|---------------|

| | |
|------------|---------------|
| Shrub | Not specified |
| Herbaceous | Not specified |

Physiographic features

This site occurs on flat to gently sloping deposits from glacial meltwater, including outwash plains, outwash terraces, and stream terraces. These landforms are not flooded or ponded, but may have a seasonal water table within 1-3 feet of the soil surface from November to April. This site may occasionally occur on steeper slopes up to 25%.

Table 2. Representative physiographic features

| | |
|--------------------|--|
| Landforms | (1) Outwash plain (2) Outwash terrace (3) Stream terrace |
| Flooding frequency | None |
| Ponding frequency | None |
| Elevation | 10–2,000 ft |
| Slope | 0–15% |
| Water table depth | 12 in |
| 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) | 102 days |
| Freeze-free period (average) | 131 days |
| Precipitation total (average) | 40 in |

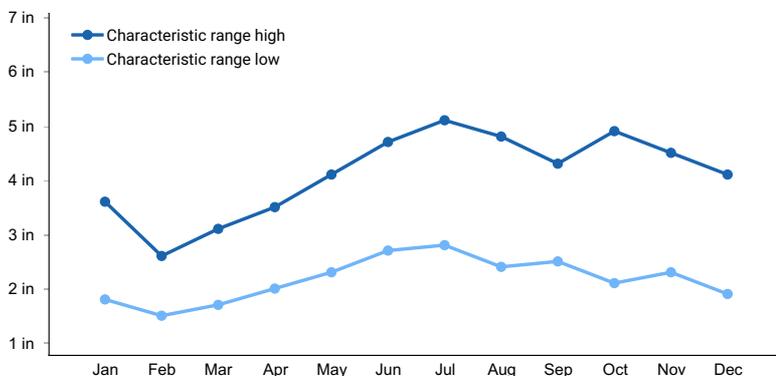


Figure 1. Monthly precipitation range

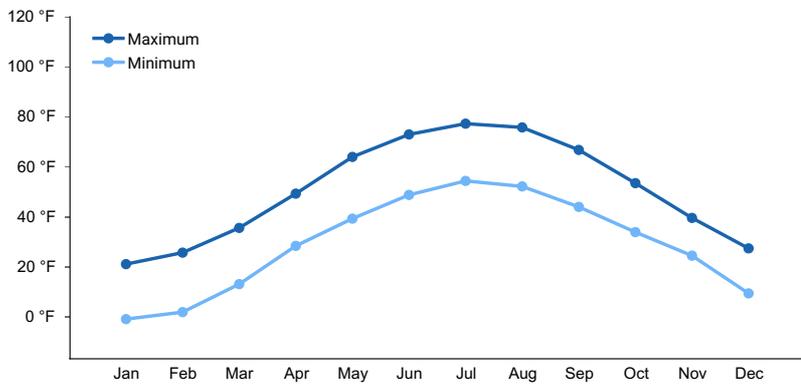


Figure 2. Monthly average minimum and maximum temperature

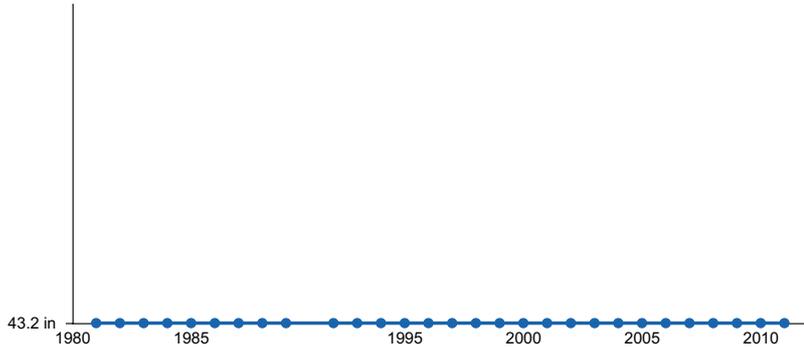


Figure 3. Annual precipitation pattern

Climate stations used

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

Influencing water features

Though this site can occur on stream terraces, they are no longer actively flooded and do not represent true floodplains or wetlands.

Soil features

The soils of this site are deep and moderately well to well drained. The surface textures are loams or sandy loams over a sandy subsoil. These soils formed as relatively coarse sediments from fast-moving glacial meltwater were overlain by finer deposits in lower energy water. Soil pH ranges from 4.5 to 6.5. These are considered prime soils for growing crops. The soil temperature regime is frigid and the soil moisture regime is udic.

Table 4. Representative soil features

| | |
|-----------------------------|--|
| Parent material | (1) Glaciofluvial deposits–slate |
| Surface texture | (1) Fine sandy loam (2) Gravelly loam |
| Family particle size | (1) Sandy |
| Drainage class | Moderately well drained to well drained |
| Soil depth | 60 in |
| Surface fragment cover <=3" | 0–2% |

| | |
|--|------------|
| Surface fragment cover >3" | 0–2% |
| Available water capacity (0-40in) | 2–7.4 in |
| Calcium carbonate equivalent (0-40in) | 0% |
| Electrical conductivity (0-40in) | 0 mmhos/cm |
| Sodium adsorption ratio (0-40in) | 0 |
| Soil reaction (1:1 water) (0-40in) | 4.5–6.5 |
| Subsurface fragment volume <=3" (Depth not specified) | 9–31% |
| Subsurface fragment volume >3" (Depth not specified) | 2–7% |

Ecological dynamics

Much of this site is considered prime farmland for growing crops. Where native vegetation is present, hardwood species predominate, with some conifers in the overstory a diverse and productive understory. Common hardwood species are red maple, sugar 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 | |
| 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:**
