

# Loamy Frozen Slopes, High Elevation (M135A\_177)

## Ecoregion Classification

**Section:** Alaska Mountains (M135A)

**Subsection(s):** Boreal Mountains (M135A.M2L)

Alpine Mountains (M135A.M2)

## Physiographic Features

**Elevation (meters):** *RV* 868 *Range* 593 to 1,479

**Slope Gradient (percent):** 17 3 to 45

**Aspect (clockwise direction):** west to east

**Landform:** benches on mountains; fan terraces on alluvial fans on mountains; mountains

**Landform Positions:** backslopes; footslopes

**Flooding:** *Frequency* None

**Ponding:** None

## Climatic Features

**Annual Precipitation (millimeters):** *RV* 1,024 *Range* 552 to 2,466

**Annual Air Temperature (°C):** -5.6 -10.7 to -2.5

**Frost Free Days:** 60 50 to 70

## Soil Features

**Parent Materials:** mossy organic material and/or woody organic material over silty eolian deposits over gravelly till  
organic material over silty eolian deposits over sandy and silty alluvium over sandy and gravelly

**Rooting Depth (cm):** *RV:* 37 *Range:* 22 to 70

## Soil Layers and Properties within Representative Rooting Depth:

Layers are described from the surface downward. If more than one texture is listed, the predominant texture is listed first. AWC = available water capacity.  
CEC = cation exchange capacity.

| Thickness<br>(cm) | Texture  | Permeability                 | AWC<br>(cm/cm) | pH         | Effective CEC<br>(me/100g) | CEC<br>(me/100g) |
|-------------------|--|------------------------------|----------------|------------|----------------------------|------------------|
| 18 to 28          | slightly decomposed plant material; peat           | moderately rapid             | .34            | 3.2 to 4.5 | 30                         |                  |
| 3 to 8            | mucky silt loam; silt loam                         | moderate                     | .18 to .40     | 3.5 to 5.2 | 12 to 15                   |                  |
| 6 to 11           | very cobbly loam; stratified gravelly sand to silt | moderate to moderately rapid | .12 to .14     | 4.3 to 6.2 | 10                         | 8                |

**Restrictive Features:** permafrost at 68 to 96 cm  
strongly contrasting textural stratification at 26 to 68 cm

**Water Table (May to September):** 0 to 50 cm

**Drainage Class:** poorly drained

## Vegetation Features

### Common Vegetation Types:

**Vegetation Type**  
Shrub birch-bog blueberry/moss scrub

**Ecological Status**  
Climax plant community

### Ecological Status-Transition Description:

A single plant community with shrub birch-bog blueberry/moss scrub is identified on this site. No transitional pathways to other communities have been identified for this site.

### Vascular Plant Species Richness:

Vascular plant species richness is based on 1999-2002 field season data only. Data from 1997 and 1998 were not used in the calculations.

| Vegetation Type                      | Total | Per Stand |      |      | Number of Stands |
|--------------------------------------|-------|-----------|------|------|------------------|
|                                      |       | Min.      | Avg. | Max. |                  |
| Shrub birch-bog blueberry/moss scrub | 27    | 13        | 16   | 22   | 3                |

### Notable Plants:

Notable plants include rare plants, range extensions, and plants little known from Denali National Park and Preserve.

| Vegetation Type                      | Symbol | Scientific Name      |
|--------------------------------------|--------|----------------------|
| Shrub birch-bog blueberry/moss scrub | STLO   | Stellaria longifolia |

### Characteristics of Shrub birch-bog blueberry/moss scrub

**Ecological Status:** Climax plant community

### Plant Species Cover, Constancy, and Importance:

Cover, constancy, and importance are based on 1997-2002 field season data. Number of stands sampled = 10. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

| Stratum | Symbol  | Scientific Name                                    | Percent Canopy Cover |      |      | Percent Constancy | Importance Value |
|---------|---------|--|----------------------|------|------|-------------------|------------------|
|         |         |  | Min.                 | Avg. | Max. |                   |                  |
| SL-SM   | SAPU15  | Salix pulchra                                      | 0.1                  | 7    | 20   | 90                | 25               |
| SD-SL   | BEGL    | Betula glandulosa                                  | 10.0                 | 30   | 45   | 100               | 55               |
| SD-SL   | VAUL    | Vaccinium uliginosum                               | 1.0                  | 25   | 60   | 100               | 50               |
| SD-SL   | LEPAD   | Ledum palustre ssp. decumbens                      | 5.0                  | 18   | 40   | 80                | 38               |
| SD      | VAVIM99 | Vaccinium vitis-idaea spp. Minus                   | 0.1                  | 8    | 25   | 70                | 24               |
| SD      | EMNI    | Empetrum nigrum                                    | 0.1                  | 5    | 10   | 90                | 21               |
| GM-GT   | FEAL    | Festuca altaica                                    | 2.0                  | 6    | 10   | 20                | 11               |
| GM      | CAREX   | Carex  | 5.0                  | 12   | 25   | 30                | 19               |
| GM      | CABI5   | Carex bigelowii                                    | 0.1                  | 5    | 10   | 30                | 12               |
| L       | LICHEN  | total lichens                                      | 0.0                  | 7    | 20   | 100               | 26               |
| M       | MOSS    | total bryophytes-mosses and liverworts             | 40.0                 | 77   | 90   | 100               | 88               |
| M1      | HYSP70  | Hylocomium splendens                               | 0.1                  | 32   | 45   | 60                | 44               |
| M1      | PLSC70  | Pleurozium schreberi                               | 15.0                 | 30   | 45   | 40                | 35               |
| M1      | ZZMOSS  | unknown-mosses                                     | 0.1                  | 8    | 15   | 40                | 18               |
| M1      | SPHAG2  | Sphagnum   | 0.1                  | 5    | 10   | 30                | 12               |
| M1      | PTCR70  | Ptilium crista-castrensis                          | 5.0                  | 5    | 5    | 20                | 10               |
| B       | LITTER  | litter-herbaceous, mulch, and woody debris <2.5 cm | 0.0                  | 5    | 20   | 100               | 22               |
| B       | LITTER2 | litter-woody debris >2.5 cm                        | 0.0                  | 0    | 0    | 100               | 0                |
| B       | SOIL    | mineral-bare soil                                  | 0.0                  | 0    | 0    | 100               | 0                |
| B       | ROCK    | mineral-surface rock fragments                     | 0.0                  | 0    | 0    | 100               | 0                |
| B       | WATER   | water  | 0.0                  | 0    | 0    | 100               | 0                |

### Stratum Height:

Stratum height is based on 1997-2002 field season data. All plant species and ground layer records from all stands are included in the calculations.

| Stratum Name                            | Included Strata | Height |      |       | Units | Number of Records |
|---|-----------------|--------|------|-------|-------|-------------------|
|   |                 | Min.   | Avg. | Max.  |       |                   |
| Tree regeneration                       | TR              | 0.3    | 0.6  | 1.0   | m     | 2                 |
| Medium shrubs                           | SM              | 1.5    | 1.8  | 2.0   | m     | 2                 |
| Low shrubs                              | SL              | 20.0   | 46.8 | 100.0 | cm    | 25                |
| Dwarf shrubs                            | SD              | 3.0    | 12.8 | 20.0  | cm    | 31                |
| Tall and medium grasses and grass-likes | GT, GM          | 30.0   | 56.0 | 120.0 | cm    | 5                 |
| Tall and medium forbs                   | FT, FM          | 20.0   | 22.5 | 30.0  | cm    | 4                 |
| Dwarf herbs, lichens, and bryophytes    | GD, FD, L, M    | 3.0    | 8.3  | 10.0  | cm    | 22                |

### Mapunit Components

#### Common Name (Soils Name):

Alpine-scrub gravelly till slopes, frozen (Typic Historthels, loamy-skeletal)

Alpine-scrub loamy diorite terraces, frozen (Typic Historthels, coarse-loamy over sandy-skeletal)

## **Soil Map Units**

Only those map units in which the landtype is a major component are listed. The landtype also may occur as a minor component in other map units.

### **Symbol: Common Name (Soils Name):**

- 7SA3 Alpine and Subalpine Glaciated Mountains with Discontinuous Permafrost  
(Oxyaquic Eutrocryepts, coarse-loamy-Typic Historthels, loamy-skeletal-Typic Haplogelods, loamy-skeletal Association, 20 to 55 percent slopes)
- 7TM2 Alpine Glaciated Mountains with Discontinuous Permafrost, Cool  
(Typic Historthels, loamy-skeletal-Typic Eutrogelepts, loamy-skeletal-Oxyaquic Eutrocryepts, coarse-loamy Association, 10 to 50 percent slopes)
- 7V1B Alpine and Subalpine Diorite Fans and Flood Plains with Discontinuous Permafrost  
(Typic Haplogelods, sandy-skeletal-Typic Historthels, coarse-loamy over sandy-skeletal-Typic Cryorthents, sandy-skeletal Association, 3 to 15 percent slopes)

## **Geographically Associated Landtypes**

### **M135A\_303—Gravelly Mountains, Acid:**

This site occurs on higher slopes and adjacent ridges. The climax plant community is "Green alder/red current/bluejoint scrub."

### **M135A\_356—Gravelly Slopes, High Elevation:**

This site occurs on very deep, well drained soils. The climax plant community is "Shrub birch-dwarf ericaceous scrub mosaic."

## **Similar Landtypes**

### **M135A\_180—Gravelly Frozen Slopes:**

This site occurs on positions with a thin loam surface over gravelly material. The climax plant community is "Shrub birch-mixed ericaceous shrub/sedge scrub."

### **M135A\_352—Gravelly and Sandy Terraces, High Elevation:**

This site has soils that are somewhat excessively drained and lack permafrost. The climax plant community is "Shrub birch-bog blueberry/lichen scrub."

### **M135A\_356—Gravelly Slopes, High Elevation:**

This site has soils that are well drained and lack permafrost. The climax plant community is "Shrub birch-dwarf ericaceous scrub mosaic."

### **M135A\_358—Gravelly Slopes:**

This site has soils that are well drained and lack permafrost. The climax plant community is "Shrub birch-bog blueberry scrub."