# Loamy Frozen Terraces (M135A_104)

## Ecoregion Classification

**Section:** Alaska Mountains (M135A)

**Subsection(s):** Lowland Flood Plains & Terraces & Fans (M135A.V1L)
Alpine Flood Plains & Terraces & Fans (M135A.V1)
Toklat Basin Lowlands (M135A.M7)
Glaciated Lowlands (M135A.G1L)

## Physiographic Features

| | RV | Range |
|---|---|---|
| **Elevation (meters):** | 553 | 333 to 919 |
| **Slope Gradient (percent):** | 1 | 0 to 2 |

**Aspect (clockwise direction):** non-influencing

**Landform:** fan terraces on alluvial fans; outwash plains; stream terraces

| | Frequency |
|---|---|
| **Flooding:** | None |
| **Ponding:** | None |

## Climatic Features

| | RV | Range |
|---|---|---|
| **Annual Precipitation (millimeters):** | 606 | 344 to 1,229 |
| **Annual Air Temperature (°C):** | -3.1 | -8.3 to -2.1 |
| **Frost Free Days:** | 68 | 50 to 80 |

## Soil Features

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

**Rooting Depth (cm):** *RV:* 28 *Range:* 17 to 39

**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 (cm) | Texture | Permeability | AWC (cm/cm) | pH | Effective CEC (me/100g) | CEC (me/100g) |
|---|---|---|---|---|---|---|
| 27 | peat | moderately rapid | .34 | 4.9 | 30 | |
| 1 | stratified gravelly sand to silt | moderately rapid | .14 | 7.0 | | 20 |

**Restrictive Features:** permafrost at 72 cm

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

**Drainage Class:** poorly drained

## Vegetation Features

**Common Vegetation Types:**

| Vegetation Type | Ecological Status |
|---|---|
| Spruce/shrub birch-bog blueberry woodland | Climax plant community |
| Mixed willow scrub | Mid stage of fire induced secondary succession |
| Spruce-shrub birch-willow woodland | Late stage of fire induced secondary succession |

**Ecological Status-Transition Description:**

Three plant communities are identified on this fire influenced site including a potential community with spruce/shrub birch-bog blueberry woodland, a mid-seral community with mixed willow scrub and a late-seral community with spruce-shrub birch-willow woodland. Fire is considered a transitional pathway between seral communities within 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 Min. | Per Stand Avg. | Per Stand Max. | Number of Stands |
|---|---|---|---|---|---|
| Spruce/shrub birch-bog blueberry woodland | 26 | 11 | 14 | 18 | 4 |
| Mixed willow scrub | 57 | 31 | 40 | 50 | 2 |
| Spruce-shrub birch-willow woodland | 19 | 19 | 19 | 19 | 1 |

### *Characteristics of Spruce/shrub birch-bog blueberry woodland*

## *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 = 11. Only those vascular, lichen, and bryophyte species with average cover >=5% and constancy >=15% are listed.

| Stratum | Symbol | Scientific Name | Percent Canopy Cover Min. | Percent Canopy Cover Avg. | Percent Canopy Cover Max. | Percent Constancy | Importance Value |
|---|---|---|---|---|---|---|---|
| TM | PIGL | Picea glauca | 20.0 | 22 | 25 | 27 | 24 |
| TM | PIMA | Picea mariana | 7.0 | 12 | 15 | 36 | 21 |
| TR | PIMA | Picea mariana | 5.0 | 5 | 5 | 27 | 12 |
| SL-SM | BEGL | Betula glandulosa | 0.1 | 14 | 60 | 100 | 37 |
| SL | VAUL | Vaccinium uliginosum | 10.0 | 21 | 40 | 100 | 46 |
| SD-SL | LEPAD | Ledum palustre ssp. decumbens | 0.1 | 12 | 25 | 91 | 33 |
| SL | CHCA2 | Chamaedaphne calyculata | 0.1 | 13 | 25 | 18 | 15 |
| SD | EMNI | Empetrum nigrum | 3.0 | 12 | 25 | 64 | 28 |
| SD | VAVIM99 | Vaccinium vitis-idaea spp. Minus | 0.1 | 9 | 20 | 73 | 26 |
| SD | ARRU6 | Arctous rubra | 0.1 | 5 | 10 | 36 | 13 |
| GM | CAREX | Carex | 0.1 | 9 | 20 | 55 | 22 |
| L | LICHEN | total lichens | 0.0 | 11 | 40 | 100 | 33 |
| L1 | CLST60 | Cladina stellaris | 7.0 | 8 | 10 | 18 | 12 |
| M | MOSS | total bryophytes-mosses and liverworts | 60.0 | 81 | 95 | 100 | 90 |
| M1 | SPHAG2 | Sphagnum | 0.1 | 23 | 50 | 45 | 32 |
| M1 | PLSC70 | Pleurozium schreberi | 0.1 | 22 | 40 | 45 | 31 |
| M1 | ZZMOSS | unknown-mosses | 5.0 | 9 | 15 | 36 | 18 |
| M1 | POLYT5 | Polytrichum | 0.1 | 8 | 15 | 27 | 15 |
| B | LITTER | litter-herbaceous, mulch, and woody debris <2.5 cm | 0.0 | 4 | 20 | 100 | 20 |
| B | LITTER2 | litter-woody debris >2.5 cm | 0.0 | 1 | 5 | 100 | 10 |
| 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 | 1 | 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 Min. | Height Avg. | Height Max. | Height Units | Number of Records |
|---|---|---|---|---|---|---|
| Trees | TT, TM, TS | 4.0 | 8.2 | 13.0 | m | 13 |
| Tree regeneration | TR | 0.3 | 1.4 | 2.0 | m | 9 |
| Medium shrubs | SM | 1.1 | 1.7 | 2.5 | m | 6 |
| Low shrubs | SL | 30.0 | 57.1 | 100.0 | cm | 31 |
| Dwarf shrubs | SD | 5.0 | 11.0 | 20.0 | cm | 23 |
| Tall and medium grasses and grass-likes | GT, GM | 20.0 | 43.3 | 130.0 | cm | 6 |
| Tall and medium forbs | FT, FM | 20.0 | 24.4 | 30.0 | cm | 9 |
| Dwarf herbs, lichens, and bryophytes | GD, FD, L, M | 2.0 | 7.6 | 10.0 | cm | 22 |

## *Site Tree Measurements:*

Only dominant, codominant, and open grown trees were measured. Height of Measurements = height above ground at which age and diameter was measured. G = ground level, B = breast height (ca 1.5 m).

| Tree Species | Age (years) | Diameter (cm) | Height (m) | | Number of Trees | Height of Measurements |
|---|---|---|---|---|---|---|
| Picea glauca | 155 | 17.1 | 9.4 | *Min.* | 1 | B |
| | 155 | 17.1 | 9.4 | *Avg* | | |
| | 155 | 17.1 | 9.4 | *Max.* | | |
| Picea mariana | 128 | 15.0 | 9.8 | *Min.* | 1 | B |
| | 128 | 15.0 | 9.8 | *Avg* | | |
| | 128 | 15.0 | 9.8 | *Max.* | | |
| Picea mariana | 113 | 4.8 | 3.7 | *Min.* | 3 | G |
| | 140 | 8.3 | 4.5 | *Avg* | | |
| | 159 | 10.7 | 5.2 | *Max.* | | |

### *Characteristics of Mixed willow scrub*

## *Ecological Status:* Mid stage of fire induced secondary succession

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

Cover, constancy, and importance are based on 1997-2002 field season data. Number of stands sampled = 2. 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 | 5.0 | 12 | 20 | 100 | 35 |
| SM | SARI4 | Salix richardsonii | 10.0 | 12 | 15 | 100 | 35 |
| SL | VAUL | Vaccinium uliginosum | 20.0 | 20 | 20 | 100 | 45 |
| SL | BEGL | Betula glandulosa | 5.0 | 12 | 20 | 100 | 35 |
| SL | LEPAD | Ledum palustre ssp. decumbens | 10.0 | 10 | 10 | 100 | 32 |
| SD | ARRU6 | Arctous rubra | 0.1 | 5 | 10 | 100 | 22 |
| SD | VAVIM99 | Vaccinium vitis-idaea spp. Minus | 5.0 | 5 | 5 | 50 | 16 |
| GT | ARLA2 | Arctagrostis latifolia | 0.1 | 5 | 10 | 100 | 22 |
| GM | CABI5 | Carex bigelowii | 2.0 | 6 | 10 | 100 | 24 |
| GM | ERBR6 | Eriophorum brachyantherum | 5.0 | 5 | 5 | 50 | 16 |
| GM | ERVA4 | Eriophorum vaginatum | 5.0 | 5 | 5 | 50 | 16 |
| FD | EQFL | Equisetum fluviatile | 5.0 | 5 | 5 | 50 | 16 |
| L | LICHEN | total lichens | 0.1 | 0 | 0 | 100 | 0 |
| M | MOSS | total bryophytes-mosses and liverworts | 40.0 | 50 | 60 | 100 | 71 |
| M1 | ZZMOSS | unknown-mosses | 10.0 | 20 | 30 | 100 | 45 |
| M1 | PLSC70 | Pleurozium schreberi | 5.0 | 10 | 15 | 100 | 32 |
| M1 | SPHAG2 | Sphagnum | 5.0 | 8 | 10 | 100 | 28 |
| M1 | POCO38 | Polytrichum commune | 15.0 | 15 | 15 | 50 | 27 |
| M1 | HYSP70 | Hylocomium splendens | 5.0 | 5 | 5 | 100 | 22 |
| B | LITTER | litter-herbaceous, mulch, and woody debris <2.5 cm | 30.0 | 40 | 50 | 100 | 63 |
| B | LITTER2 | litter-woody debris >2.5 cm | 3.0 | 4 | 5 | 100 | 20 |
| B | SOIL | mineral-bare soil | 0.1 | 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 | | | | Number of Records |
|---|---|---|---|---|---|---|
| | | *Min.* | *Avg.* | *Max.* | *Units* | |
| Tree regeneration | TR | 1.0 | 2.1 | 4.0 | m | 3 |
| Tall shrubs | ST | 4.0 | 4.0 | 4.0 | m | 1 |
| Medium shrubs | SM | 1.2 | 1.4 | 1.6 | m | 3 |
| Low shrubs | SL | 30.0 | 40.0 | 50.0 | cm | 2 |
| Dwarf shrubs | SD | 5.0 | 5.0 | 5.0 | cm | 1 |
| Dwarf herbs, lichens, and bryophytes | GD, FD, L, M | 3.0 | 3.5 | 4.0 | cm | 2 |

## *Characteristics of Spruce-shrub birch-willow woodland*

### *Ecological Status:* Late stage of fire induced secondary succession

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

Cover, constancy, and importance are based on 1997-2002 field season data. Number of stands sampled = 2. 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.* | | |
| TM | PICEA | Picea | 10.0 | 10 | 10 | 50 | 22 |
| TR | PIMA | Picea mariana | 10.0 | 10 | 10 | 50 | 22 |
| TR | PICEA | Picea | 5.0 | 5 | 5 | 50 | 16 |
| TR | PIGL | Picea glauca | 5.0 | 5 | 5 | 50 | 16 |
| SL-SM | BEGL | Betula glandulosa | 15.0 | 35 | 55 | 100 | 59 |
| SL-SM | SAPU15 | Salix pulchra | 10.0 | 12 | 15 | 100 | 35 |
| SM | ALVIC | Alnus viridis ssp. crispa | 15.0 | 15 | 15 | 50 | 27 |
| SL | LEPAD | Ledum palustre ssp. decumbens | 10.0 | 10 | 10 | 100 | 32 |
| SL | VAUL | Vaccinium uliginosum | 15.0 | 15 | 15 | 50 | 27 |
| SL | CHCA2 | Chamaedaphne calyculata | 10.0 | 10 | 10 | 50 | 22 |
| SD | VAVIM99 | Vaccinium vitis-idaea spp. Minus | 10.0 | 18 | 25 | 100 | 42 |
| SD | SAFU | Salix fuscescens | 5.0 | 5 | 5 | 50 | 16 |
| GM | ERIOP | Eriophorum | 0.1 | 15 | 30 | 100 | 39 |
| FD | RUCH | Rubus chamaemorus | 5.0 | 5 | 5 | 100 | 22 |
| L | LICHEN | total lichens | 0.1 | 3 | 5 | 100 | 17 |
| M | MOSS | total bryophytes-mosses and liverworts | 50.0 | 62 | 75 | 100 | 79 |
| M1 | SPHAG2 | Sphagnum | 10.0 | 42 | 75 | 100 | 65 |
| M1 | POCO38 | Polytrichum commune | 15.0 | 15 | 15 | 50 | 27 |
| M1 | ZZMOSS | unknown-mosses | 15.0 | 15 | 15 | 50 | 27 |
| M1 | HYSP70 | Hylocomium splendens | 10.0 | 10 | 10 | 50 | 22 |
| B | LITTER | litter-herbaceous, mulch, and woody debris <2.5 cm | 20.0 | 40 | 60 | 100 | 63 |
| B | LITTER2 | litter-woody debris >2.5 cm | 0.1 | 1 | 2 | 100 | 10 |
| 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 | | | | Number of Records |
|---|---|---|---|---|---|---|
| | | *Min.* | *Avg.* | *Max.* | *Units* | |
| Trees | TT, TM, TS | 10.0 | 10.0 | 10.0 | m | 1 |
| Tree regeneration | TR | 2.0 | 3.2 | 4.5 | m | 2 |
| Medium shrubs | SM | 1.7 | 1.8 | 2.0 | m | 2 |
| Low shrubs | SL | 30.0 | 65.0 | 100.0 | cm | 4 |
| Dwarf shrubs | SD | 10.0 | 10.0 | 10.0 | cm | 3 |
| Tall and medium grasses and grass-likes | GT, GM | 30.0 | 30.0 | 30.0 | cm | 1 |
| Tall and medium forbs | FT, FM | 10.0 | 15.0 | 20.0 | cm | 2 |
| Dwarf herbs, lichens, and bryophytes | GD, FD, L, M | 4.0 | 4.0 | 4.0 | cm | 1 |

## *Mapunit Components*

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

Boreal-taiga high elevation loamy terraces, frozen (Typic Historthels, coarse-loamy)

## *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):***

10V2 Boreal Terraces and Plateau Toeslopes with Continuous Permafrost
(Typic Histoturbels, coarse-silty-Typic Historthels, coarse-loamy Association, 0 to 2 percent slopes)

11ST Boreal Terraces and High Flood Plains with Discontinuous Permafrost
(Typic Cryofluvents, coarse-loamy over sandy-skeletal-Typic Historthels, coarse-loamy-Typic Histoturbels, coarse-silty Association, 0 to 2 percent slopes)

7AFF Boreal Outwash Plains and Fans with Discontinuous Permafrost
(Typic Eutrocryepts, sandy-skeletal-Typic Cryaquents, coarse-loamy over sandy-skeletal-Typic Historthels, coarse-loamy Association, 0 to 5 percent slopes)

7P6 Boreal Outwash Plains with Continuous Permafrost
(Typic Historthels, coarse-loamy-Typic Eutrocryepts, sandy-skeletal Association, 0 to 10 percent slopes)

7STF Alpine Terraces and Outwash Plains with Continuous Permafrost
(Typic Histoturbels, coarse-silty-Typic Historthels, coarse-loamy Association, 0 to 3 percent slopes)

## *Geographically Associated Landtypes*

***M135A_105 — Loamy Frozen Terraces, Wet:***

This site occurs on similar positions has wetter soils. The climax plant community is "Black spruce/tussock cottongrass woodland."

***M135A_151 — Loamy High Flood Plains:***

This site occurs on slightly lower positions with deep, well drained soils. The climax plant community is "White spruce/bog blueberry/feathermoss forest."

***M135A_156 — Loamy Wet High Flood Plains:***

This site occurs on flood plains. The climax plant community is "White spruce/Richardson willow/horsetail woodland."

***M135A_350 — Gravelly and Sandy Slopes:***

This site occurs on very deep, well drained gravelly soils. The climax plant community is "White spruce/shrub birch woodland."

## *Similar Landtypes*

***M135A_350 — Gravelly and Sandy Slopes:***

This site has somewhat excessively drained soils that are very deep. The climax plant community is "White spruce/shrub birch woodland."