USDA icon **Natural Resources Conservation Service**

Major Land Resource Area 231X
Interior Alaska Highlands

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Ecological site keys

Interior Alaska Uplands - MLRA 231 - Life Zone Key

I. Elevations above 2500 feet. In this area, the subalpine and alpine life zones typically occur above 2500 feet.

A. The subalpine life zone has sparse stunted trees and birch and willow shrub species grow at ? 1 m in height.

B. The alpine life zone is where trees no longer occur and all shrubs are dwarfed or lay prostrate on the ground.

II. Elevations below 2500 feet. The boreal life zone is a place where stands of trees dominate and typically occurs below 2500 feet. On warm slopes, this life zone transition can occur at higher elevations. On cold slopes, this life zone transition can occur at lower elevations.

Interior Alaska Uplands - MLRA 231 - Alpine Life Zone

I. Streams and drainageways. ... R231XY152AK – High-elevation scrub gravelly drainageways

II. All other landforms.

A. Wetland soils. These include soils that pond, have a water table at very shallow to shallow depths for long durations of time (0 to 20 inches), and/or are classified as very poorly to poorly drained.

1 Depressions with ? 40 cm of saturated organic material. ... R231XY149AK – High-elevation Sedge Peat Depressions

2 Not as above.

i. Calcareous soils.

a. Soils with >20 cm of organic matter and permafrost at depth. ... R231XY103AK – Alpine Dwarf Scrub Gravelly Frozen Alkaline Slopes

b. Thinner organic cap, soils do not have permafrost. Extremely gravelly soils. ... R231XY106AK – Alpine Dwarf Scrub Gravelly Frozen Alkaline Slopes

ii. Not as above.

a. Soils very gravelly with no permafrost. Commonly associated with large solifluction lobes. ... R231XY113AK – Alpine Dwarf Scrub Gravelly Moist Slopes

b. Soils associated with permafrost.

1) silty soils commonly associated with turf hummocks on rounded mountains. ... R231XY115AK – Alpine sedge silty frozen slopes

2) gravelly soils commonly associated with non-sorted circles and stripes on all mountains. ... R231XY134AK – Alpine Dwarf Scrub Gravelly Frozen Slopes

B. Not as above, non-wetland soils.

1 Calcareous soils.

i. Cold slopes. ... R231XY104AK – Alpine Dwarf Scrub Gravelly Alkaline Cold Slopes

ii. Warm slopes. ... R231XY105AK – Alpine Dwarf Scrub Gravelly Alkaline Slopes

2 Not as above. ... R231XY101AK – Alpine dwarf scrub gravelly slopes

Interior Alaska Uplands - MLRA 231 - Subalpine Life Zone

I. Streams and drainageways. ... R231XY152AK – High-elevation scrub gravelly drainageways

II. All other landforms.

A. Wetland soils. These include soils that pond, have a water table at very shallow to shallow depths for long durations of time (0 to 20 inches), and/or are classified as very poorly to poorly drained.

1 Depressions with ? 40 cm of saturated organic material. ... R231XY149AK – High-elevation Sedge Peat Depressions

2 Sloping landforms.

i. Occurs in protected positions like headslopes that accumulate snow, reduce wind, and reduce the harsh climate in the subalpine life zone. This site supports high elevations stands of trees. ... F231XY184AK – Subalpine Forest Gravelly Moist Slopes

ii. Not as above, exposed positions.

a. Backslopes with a thick layer of saturated organic material (? 20 cm) over permafrost. ... R231XY129AK – Subalpine Scrub Loamy Frozen Slopes

b. Footslopes and toeslopes with extensive turf hummocks and thick layer of saturated organic material (?20 cm) over permafrost. ... R231XY185AK – Subalpine Scrub Loamy Frozen Footslopes

B. Not as above, non-wetland soils.

1 Oxyaquic soils. Commonly associated with swales on backslopes. ... R231XY148AK – Subalpine Scrub Gravelly Slopes Moist

2 Well drained soils. ... R231XY164AK – Subalpine Scrub Gravelly Slopes Dry

Interior Alaska Uplands - MLRA 231 - Boreal Life Zone

I. Ecological sites of the boreal life zone

A. **The site occurs on drainageway, flood-plain steps, or stream terraces**

1 **The site occurs drainageways.**

i. **Steeper drainageways. Slopes commonly 10 to 40 percent.**

ii. **Nearly level to gentle sloping drainageways.**

a. **Silty and wet soils that are prone to having permafrost. ...** F231XY193AK – Boreal Woodland Loamy Frozen Drainageways

b. **Gravelly and wet soils that do not typically have permafrost. ...** R231XY191AK – Boreal Scrubland Gravelly Drainageways Wet

2 **The site occurs on flood-plain steps. Flooding happens at least one time in one hundred years.**

i. **Large order streams distal from the mountains. Soils commonly lack thick bands of gravels in the soil profile. Permafrost common in the high flood plain. Potentially restricted to the Yukon River.**

a. **Depressions ...** R231XY138AK – Boreal Sedge Loamy Flood Plain Depressions

b. **flood-plain steps**

1) **frequent to occasional flooding**

a) **low flood plain; frequent flooding, shrubby communities. ...** R231XY198AK – Boreal Scrubland Loamy Flood Plain

b) **Middle flood plain; occasional flooding, commonly supports stands of balsam poplar. ...** F231XY189AK – Boreal Forest Loamy Flood Plain

2) **Rare Flooding. The high flood plain commonly supports stands of white spruce. ...** F231XY196AK – Boreal Forest Loamy Frozen Flood Plain

ii. **Small order streams proximal to the mountains like Beaver Creek and Chatanika River. Soils generally have gravelly horizons**

a. **Depressions. ...** R231XY138AK – Boreal Sedge Loamy Flood Plain Depressions

b. **flood-plain steps**

1) **Low floodplain; frequent flooding, shrubby communities. ...** R231XY130AK – Boreal Scrubland Gravelly Floodplain

2) **Occasional to rare flooding, forested communities when not recently burned.**

a) **high flood plain; occasional to rare flooding. Comparatively drier soils with more productive stands of trees. ...** F231XY131AK – Boreal Forest Gravelly Floodplain

b) **high flood-plain step. rare flooding. Comparitively wetter soils and less productive stands of trees. ...** F231XY151AK – Boreal Forest Loamy Frozen Floodplain Moist

3 **This site occurs on stream terraces. No flooding in one hundred years.**

i. **Wetland soils. These include soils that pond, have a water table at very shallow to shallow depth for long durations of time (0 to 20 inches), and/or are classified as very poorly to poorly drianed.**

a. **abandoned channels ...** R231XY137AK – Boreal Sedge Peat Depressions

b. **terrace tread and thermokarst pits**

1) **Soils with >40 cm of organic material, prone to thermokarst. ...** F231XY169AK – Boreal Woodland Peat Frozen Flats

2) Soils with <40 cm of organic material, not as prone to thermokarst. ... F231XY171AK – Boreal Woodland Loamy Frozen Terraces

ii. Not as above, non-wetland soils. Thick gravels at very shallow to shallow depth. ... F231XY250AK – Boreal Woodland Gravelly Terraces

B. This site occurs on sloping landforms like hills, plains, and mountains.

1 This site occurs on cold slopes which are northwest to east facing slopes, occur in shaded slope positions, and/or occur in low-lying areas that are cold air sinks

i. Alkaline/Calcareous soils.

a. forested wetlands.

1) Soils typically have > 20 cm of organic matter, have minimal gravel content, and have permafrost. ... F231XY053AK – Boreal Woodland Organic Frozen Alkaline Slopes

2) Gravelly soils that lack permafrost. ... F231XY054AK – Boreal Woodland Gravelly Moist Alkaline Slopes

b. non-wetland soils. ... F231XY057AK – Boreal Woodland Gravelly Cold Alkaline Slopes

ii. Not as above, acidic parent material.

a. Steep, north facing slopes. Slope is typically > 35%

1) Thick organic matter and permafrost. ... F231XY166AK – Boreal Woodland Gravelly Frozen Slopes

2) Dry soils. Potentially restricted to North facing slopes adjacent to the Yukon River. ... F231XY181AK – Boreal Forest Gravelly Slopes Steep Cold

b. Less steep slopes.

1) Wetland soils. These include soils that pond, have a water table at very shallow to shallow depth for long durations of time (0 to 20 inches), and/or are classified as very poorly to poorly drianed.

a) broad slopes, commonly summits. Supports mixed shrub-sedge tussock bog. ... R231XY128AK – Boreal Tussock Peat Frozen Slopes

b) Not as above, supports woodlands and forests.

(1) Footslope and Toeslope with peaty, frozen soils. ... F231XY118AK – Boreal Woodland Organic Frozen Slopes

(2) Summits, shoulders, and backslopes.

(a) loamy soils with permafrost. Assumes no recent fires. ... F231XY111AK – Boreal Forest Loamy Frozen Slopes

(b) gravelly soils with permafrost. Assumes no recent fires. ... F231XY160AK – Boreal Forest Loamy Frozen Slopes

2) Not as above, non-wetland soils.

a) Deep loess cap over paralithic bedrock or gravelly soils ... F231XY190AK – Boreal Forest Silty Slopes Cold

b) Gravelly soils at very shallow to shallow depth. ... F231XY162AK – Boreal Woodland Gravelly Slopes Cold

2 This site occurs on warm slopes which are southeast to west facing slopes that are moderate to very steep (>10% slope) and are not shaded by the surrounding landscape.

i. Alkaline/calcareous soils.

a. Very steep, erosive slopes. ... R231XY109AK – Boreal Scrub Gravelly Slopes Dry

b. Not as above. ... F231XY055AK – Boreal Woodland Gravelly Alkaline Slopes

ii. Not as above, acidic parent material.

a. Very steep slopes. Slope is typically >50%.

1) erosive slopes. ... R231XY109AK – Boreal Scrub Gravelly Slopes Dry

2) Not as erosive. ... F231XY110AK – Boreal Forest Gravelly Slopes Steep

b. Less steep slopes

1) Soils with >20 inches of silt over gravelly soil or paralithic bedrock

a) Somewhat poorly to moderately well drained soils, soils prone to thermokarst, commonly on lower third of slope. ... F231XY187AK – Boreal Forest Silty Slopes Moist

b) Drier soils.

(1) 20-40 inches of silt over gravelly soil or paralithic bedrock. ... F231XY188AK – Boreal Forest Silty Slopes Bedrock

(2) More than 40 inches of silt over gravelly soils or paralithic bedrock. ... F231XY186AK – Boreal Forest Silty Slopes

2) Soils with < 20 inches of silt over gravelly soils or paralithic bedrock.

a) 0-10 inches of silty soil over gravelly soil or paralithic bedrock. ... F231XY180AK – Boreal Woodland Gravelly Slopes Dry

b) 10-20 inches of silt over gravelly soils or paralithic bedrock. ... F231XY182AK – Boreal Forest Gravelly Slopes