Ecological site XA232X02Y217
Boreal Woodland Loamy Frozen Plain Wet

Last updated: 5/18/2020
Accessed: 05/13/2025

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.

MLRA notes

Major Land Resource Area (MLRA): 232X–Yukon Flats Lowlands

The Yukon Flats Lowlands MLRA is an expansive basin characterized by numerous levels of flood plains and terraces that are separated by minimal breaks in elevation. This MLRA is in Interior Alaska and is adjacent to the middle reaches of the Yukon River. Numerous tributaries of the Yukon River are within the Yukon Flats Lowlands MLRA. The largest are Beaver Creek, Birch Creek, Black River, Chandalar River, Christian River, Dall River, Hadweenzic River, Hodzana River, Porcupine River, and Sheenjek River. The MLRA has two distinct regions—lowlands and marginal uplands. The lowlands have minimal local relief and are approximately 9,000 square miles in size (Williams 1962). Landforms associated with the lowlands are flood plains and stream terraces. The marginal uplands consist of rolling and dissected plains that are a transitional area between the lowlands and adjacent mountain systems. The marginal uplands are approximately 4,700 square miles in size (Williams 1962).

This MLRA is bounded by the Yukon-Tanana Plateau to the south, Hodzana Highlands to the west, Porcupine Plateau to the east, and southern foothills of the Brooks Range to the north (Williams 1962). These surrounding hills and mountains partially isolate the Yukon Flats Lowlands MLRA from weather systems affecting other MLRAs of Interior Alaska. As a result, temperatures are generally warmer in summer and colder in winter than is characteristic in other areas at comparable latitude. There is a moisture and temperature gradient in which the lowlands region tends to be drier and colder and the surrounding marginal uplands region tends to be moister and warmer (PRISM Climate Group 2006).

The Yukon Flats Lowlands MLRA is mostly undeveloped lands that are sparsely populated and not accessible by a road system. A number of villages, including Beaver, Birch Creek, Chalkyitsik, Circle, Fort Yukon, Stevens Village, and Venetie, are adjacent to the Yukon River or one of its major tributaries. The largest village is Fort Yukon, which according to the 2010 U.S. Census has 583 residents that are dominantly Gwich'in Alaska Natives.

LRU notes

Alaska has no officially recognized LRU. However, there appear to be two distinct LRU in the Yukon Flats Lowlands MLRA. These LRU are thought to have differing climatic regimes, landforms, and soil types (STATSGO and Jorgensen and Meidinger 2015). The two LRU were previously discussed in the MLRA notes section above and are termed the lowlands LRU, and the marginal uplands LRU.

This ecological site is associated with the marginal uplands LRU.

Classification relationships

Yukon Flats Lowlands MLRA.

Ecological site concept

This ecological site occurs where water accumulates on the slopes (i.e. lower third of slopes and swales) of the marginal uplands region of the Yukon Flats Lowlands MLRA. The marginal uplands are characterized by broad and extensive plains. Associated soils have very deep loess deposition, are prone to ponding, and are considered poorly drained. The reference state supports two plant communities related to a fire regime.

The reference plant community phase is characterized as needleleaf woodland (10 to 25 percent cover; Viereck et al. 1992) primarily composed of black spruce (Picea mariana). Commonly observed understory species include bog Labrador tea (*Ledum groenlandicum*), bog blueberry (*Vaccinium uliginosum*), lingonberry (Vaccinium vitis-idaea), bog birch (Betula nana), shrub birch (Betula glandulosa), Bigelow's sedge (Carex bigelowii), tussock cottongrass (Eriophorum vaginatum), splendid feathermoss (Hylocomium splendens), and Sphagnum moss (Sphagnum spp.).

Associated sites

XA232X02Y210	**Boreal Forest Loamy Frozen Plains Warm** This ecological site occurs in the marginal uplands region of the Yukon Flats Lowlands MLRA. The marginal uplands are characterized by broad and extensive plains. This ecological site occurs on warm slopes of these plains. Associated soils have very deep loess deposition and are well drained. The reference plant community phase is characterized as an open needleleaf forest (25 to 60 percent cover; Viereck et al. 1992) primarily composed of mature white spruce (Picea glauca).
XA232X02Y227	**Boreal Forest Loamy Frozen Plains Cold** This ecological site occurs in the marginal uplands region of the Yukon Flats Lowlands MLRA. The marginal uplands are characterized by broad and extensive plains. This ecological site occurs on colder slopes of these plains. Associated soils have very deep loess deposition and range from poorly to somewhat poorly drained. The reference plant community is characterized as an open needleleaf forest (25 to 60 percent cover; Viereck et al. 1992) primarily composed of black spruce.
XA232X02Y211	**Boreal Loamy Escarpments** This ecological site is associated with steep and erosive escarpments in the marginal uplands region of the Yukon Flats Lowlands MLRA. During field work, these escarpments were not sampled and this ecological site is currently a provisional concept.
XA232X02Y203	**Boreal Scrub Loamy Frozen Drainages** This ecological site occurs in the marginal uplands region of the Yukon Flats Lowlands MLRA. The marginal uplands are characterized by broad and extensive plains. This ecological site occurs in drainageways on these plains. Associated soils flood occasionally (5 to 50 times in 100 years) for long durations of time (between 7 and 30 days). Soils range from poorly to very poorly drained. The reference plant community is characterized as closed tall scrub (Viereck et al. 1992). Black spruce commonly occurs but cover is generally low.
XA232X01Y201	**Boreal Woodland Peat Frozen Terraces** This ecological site occurs in organic rich bogs in the lowlands and marginal uplands regions of the Yukon Flats Lowlands MLRA. The cumulative thickness of organic material often exceeds 50 inches in the soil profile. Reference state soils are poorly drained and organic material is considered ultra to extremely acidic. The soils associated with the reference plant community generally have permafrost at moderate depth (20 to 40 inches). This ecological site has an alternative state related to thermokarst.

Similar sites

XA232X01Y201	**Boreal Woodland Peat Frozen Terraces** XA232X01Y201 is associated with bogs in both the lowlands and marginal uplands LRU in the Yukon Flats Lowlands MLRA. While XA232X01Y201 and XA232X02Y217 both support black spruce woodlands, XA232X01Y201 has more Sphagnum ground cover and appears more prone to thermokarst after fire events.
XA232X02Y227	**Boreal Forest Loamy Frozen Plains Cold** XA232X02Y227 supports black spruce open forests in drier landform positions adjacent to this ecological site.
XA232X01Y262	**Boreal Woodland Gravelly Terraces** This ecological site has similar reference state plant community communities but occurs on gravelly stream terraces in the Lowlands LRU in the Yukon Flats Lowlands MLRA.

XA232X01Y209	**Boreal Tussock Loamy Frozen Terraces** This ecological site has similar reference state plant communities but occurs on stream terraces in the Lowlands LRU in the Yukon Flats Lowlands MLRA.
XA232X01Y218	**Boreal Woodland Loamy Frozen Terraces** This ecological site has similar reference state plant communities but occurs on stream terraces in the Lowlands LRU in the Yukon Flats Lowlands MLRA.

Table 1. Dominant plant species

Tree	(1) *Picea mariana*
Shrub	(1) *Carex bigelowii* (2) *Eriophorum vaginatum*
Herbaceous	(1) *Hylocomium splendens* (2) *Sphagnum*

Legacy ID

F232XY217AK

Physiographic features

This ecological site and its associated plant communities occur in the marginal uplands region of the Yukon Flats Lowlands MLRA. The marginal uplands are characterized by broad and extensive plains. Due to weathering, these plains are often highly dissected and often resemble hill complexes. In areas where plains are highly dissected, slopes can be steep. This ecological site is associated with areas within the marginal uplands that have very deep accumulations of loess (greater than 60 inches).

Four ecological sites were observed on slopes of these loess covered plains. This ecological site occurs in positions where water accumulates on the slopes (e.g. lower third of slopes or in swales). Ecological site XA232X02Y227 is associated with rises on colder slopes (e.g. north facing and moderately steep slopes). Ecological site XA232X02Y210 is associated with rises on warmer slopes (e.g. south facing or steep slopes). Ecological site XA232X02Y211 is associated with steep and erosive escarpments on slopes. These differences in site characteristics lead to dramatically different assemblages of vegetation and resulted in unique ecological site concepts.

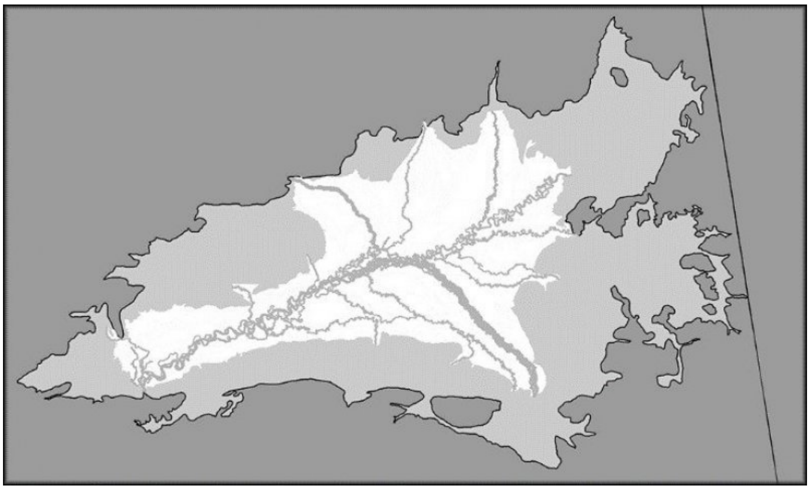


Figure 1. Lowlands (white) and marginal uplands (light gray) LRU of the Yukon Flats Lowlands MLRA.

Table 2. Representative physiographic features

Landforms	(1) Plains > Swale
Flooding frequency	None

Ponding duration	Very long (more than 30 days)
Ponding frequency	Frequent
Elevation	107–411 m
Slope	0–3%
Aspect	W, NW, N, NE, E, SE, S, SW

Climatic features

Short, warm summers and long, very cold winters characterize the subarctic continental climate of the area. The surrounding hills and mountains of this MLRA partially isolate it from weather systems affecting other interior lowlands. As a result, temperatures are generally warmer in summer and colder in winter than is characteristic in other areas of comparable latitude. The average annual temperature ranges from about 20 to 25 degrees F (-7 to -4 degrees C). The freeze-free period averages 70 to 120 days. The temperature usually remains above freezing from early June through late August. The average annual precipitation ranges from about 6 inches (150 millimeters) in the central basin to 15 inches (380 millimeters) along the boundary with the surrounding highlands. The maximum precipitation occurs in late summer, mainly as a result of thunderstorms. The average annual snowfall is about 45 to 55 inches (115 to 140 centimeters) (USDA, NRCS 2006).

The tabular data in this report is specific to the marginal uplands LRU in the Yukon Flats Lowlands MLRA. All tabular data was calculated from the PRISM dataset (1971-2000).

Table 3. Representative climatic features

Frost-free period (characteristic range)	45-97 days
Freeze-free period (characteristic range)	70-120 days
Precipitation total (characteristic range)	229-559 mm
Frost-free period (average)	75 days
Freeze-free period (average)	
Precipitation total (average)	279 mm

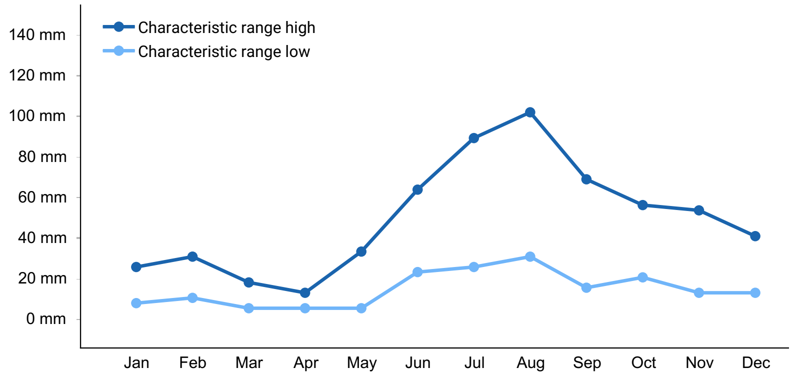


Figure 2. Monthly precipitation range

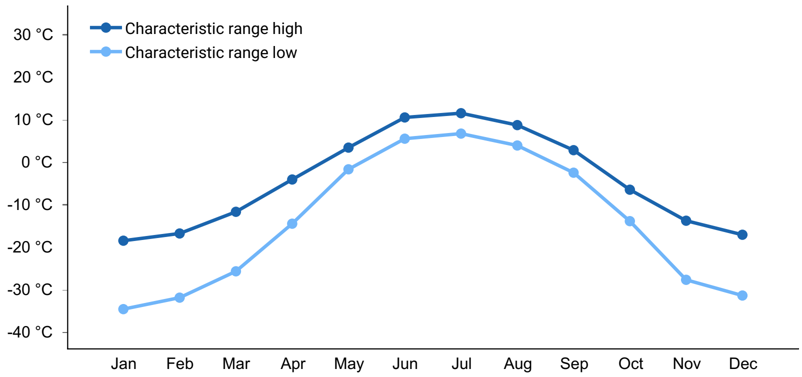


Figure 3. Monthly minimum temperature range

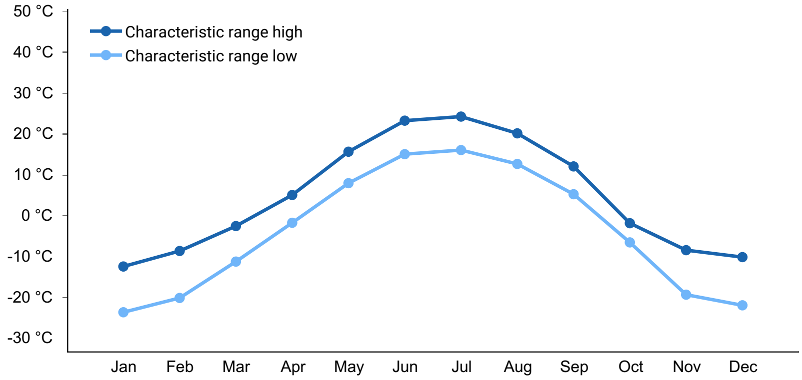


Figure 4. Monthly maximum temperature range

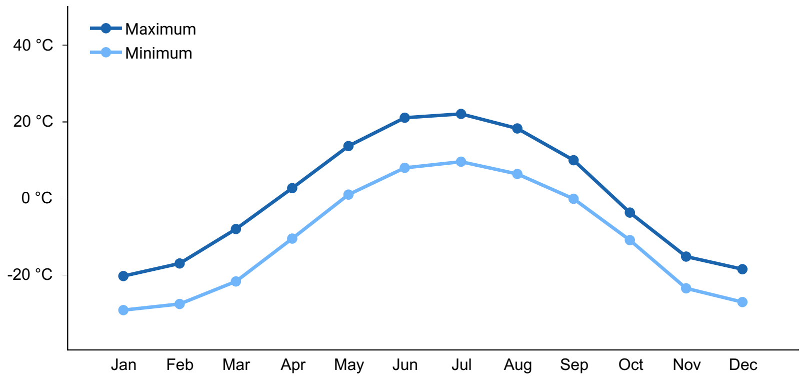


Figure 5. Monthly average minimum and maximum temperature

Influencing water features

During spring and the early growing season (May and June), a perched water table is over the seasonal frost in the soil profile resulting in wet soils at very shallow depth (less than 10 inches). During this time frame, ponding occurs frequently (greater than 50 times in 100 years) for very long durations of time (greater than 30 days). As the seasonal frost melts, the water drains from these soils. During long portions of the growing season, a water table is commonly at shallow depths (10 to 20 inches) in the soil profile. Ponding duration and the typical depth to the water table was determined through field observations.

Due to the depth and persistence of this water table, wetland indicator plants are commonly observed in the reference state.

While field observations support that each reference state plant community is associated with permafrost, fire was thought to increase active layer depth causing the permafrost to occur deeper in the soil profile.

Soil features

Correlated soil components for the Yukon Flats Areas, Alaska soil survey (AK685):

Ruptic Histoturbels.

Figure 6. Typical soil profile of Ruptic Histoturbel soil component. Sample on tarp is a core from SIPRE auger.

Table 4. Representative soil features

Parent material	(1) Organic material (2) Loess
Family particle size	(1) Coarse-silty
Drainage class	Poorly drained

Ecological dynamics

Fire

In the Yukon Flats Lowlands MLRA, fire is a common and natural event that has a significant control on the vegetation dynamics across the landscape. A typical fire event in areas associated with this ecological site will reset plant succession and alter dynamic soil properties (e.g., presence or thickness of permafrost). For this ecological site to progress from the early fire stage (community 1.2) to the reference plant community (community 1.1), data suggest that 70 years or more must elapse without another fire event.

When comparing all MLRAs of Interior Alaska, land in the Yukon Flats Lowlands MLRA burns most frequently (Begét et al. 2006). Within the Yukon Flats Lowlands MLRA, fire is considered to be a natural and common event that typically goes unmanaged. Fire suppression generally occurs adjacent to villages or on allotments with known structures, both of which have a relatively limited acre footprint. From 2000 to 2015, 132 known fire events occurred on land in the Yukon Flats Lowlands MLRA and the burn perimeters of the fires totaled about 4.1 million acres (AICC 2016). Fire-related disturbances are highly patchy and can leave large undisturbed areas within the burn perimeters. Ten fires were attributed to human activities (affecting a total of 2,864 acres), but the majority of the fires were caused by lightning strikes (AICC 2016).

The fire regime within Interior Alaska follows two basic scenarios—low-severity burns and high-severity burns. It should be noted, however, that the fire regime in this area is generally thought to be much more complex (Johnstone et al. 2008). Burn severity refers to the proportion of the vegetative canopy and organic material consumed in a fire event (Chapin et al. 2006). Fires in cool and moist habitat tend to result in low-severity burns, while fires in warm and dry habitat tend to result in high-severity burns. From field observations and because the associated soils are cooler and poorly drained, the typical fire scenario for this ecological site is considered to result in a low-severity burn.

While a low-severity fire can consume the bulk of above ground vegetation, minimal proportions of the organic mat are typically removed. Organic matter continues to insulate these cold soils and permafrost remains in the soil profile. While field observations support that each reference state plant community is associated with permafrost, fire was thought to increase active layer depth causing the permafrost to occur deeper in the soil profile.

In areas prone to low-severity fire events, the pre-fire vegetative community generally reestablishes quickly and there is minimal long-term alteration to community composition (Johnstone et al. 2010; Bernhardt et al. 2011). When minimal proportions of the organic mat are consumed, many species regenerate asexually using below ground root tissues. Species known to regenerate after low-severity fire events include various graminoids (e.g. Carex spp. and Eriophorum spp.), forbs (e.g. Equisetum sp.), and shrubs (e.g. *Ledum groenlandicum*, *Vaccinium uliginosum*, Salix sp.) (Johnstone et al. 2010). Black spruce is the Interior Alaska tree species best adapted to a low-severity fire regime. Black spruce have semi-serotenous cones and a low-severity fire often results in a flush of black spruce seedlings at the burned location.

Field data suggest that when the woodland community burns, the fire events will cause a transition to the early stage of fire succession. This stage (community 1.2) is a mix of species that either regenerate in place (e.g., subterranean root crowns for willow and rhizomes for graminoids) and/or from wind-dispersed seeds or spores (e.g., resin birch [*Betula neoalaskana*] and Polytrichum moss [Polytrichum spp.]). The early stage of fire succession is primarily composed of tree seedlings, ericaceous shrubs, willow, and graminoids. In the absence of fire, tree seedlings continue to colonize and grow in recently burned areas until they become dominant in the overstory. The later stages of succession have an overstory that is a mix of immature broadleaf and needleleaf trees (not sampled in the field) or is primarily a mixed age needleleaf stand (community .1).

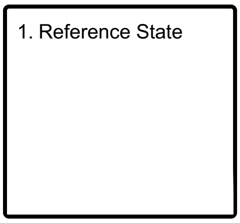
Other Observations

Animal use (browsing and grazing) of this ecological site primarily consists of moose browse on willow during the earlier stages of fire succession.

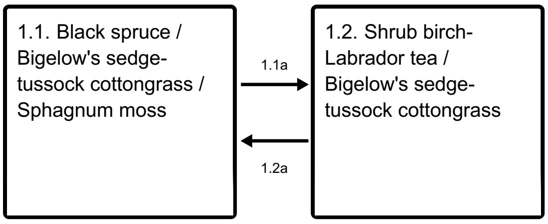
No alternative states for this ecological site were documented.

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 1
Reference State

Figure 7. Aerial image of the marginal uplands in the Yukon Flats Lowlands MLRA. This ecological site is associated with cold and very wet slopes in this MLRA.

The reference state has two associated communities. The phases are grouped by the structure and dominance of the vegetation (e.g., coniferous trees, deciduous trees, shrubs, and forbs) and their ecological function and stability. Plant communities in the reference state appear to be largely controlled by the influences of fire. Fire may be an integral part of maintaining reference state vegetation. In the absence of fire, organic material accumulates and that increase facilitates tree, shrub, and moss invasion of tussocks (Viereck et al. 1992). The increase of non-graminoid cover is thought to lead to the senesce and death of tussocks (Viereck et al. 1992). Fire events remove non-graminoid cover, this disturbance provides nutrients for tussocks, and tussocks become more productive (Viereck et al. 1992). This report provides baseline vegetation inventory data for the ecological site. More data collection is needed to provide further information about existing plant communities and the disturbance regimes that would result in transitions from one community to another. The common and scientific plant names are from the USDA PLANTS database. All plant communities in this report are characterized using the Alaska Vegetation Classification (Viereck et al. 1992).

Community 1.1
Black spruce / Bigelow's sedge-tussock cottongrass / Sphagnum moss

Figure 8. Typical plant community associated with community 1.1.

Community Phase 1.1 Canopy Cover Table

Vegetation information is provided as frequency (percent) and mean canopy cover (percent) of the most dominant and ecologically relevant species for this community phase. Canopy cover is represented as a mean with the range in parentheses.

Plant group	Common name	Scientific name	USDA plant code	Frequency (percent)	Mean canopy cover (percent)
T	black spruce	*Picea mariana*	PIMA	100	25 (5-45)
S	Labrador tea	*Ledum spp.*	LEGR	100	10 (1-20)
S	bog blueberry	*Vaccinium uliginosum*	VAUL	100	9 (0.1-20)
S	lingonberry	*Vaccinium vitis-idaea*	VAVI	100	7 (1-20)
S	willow	*Salix spp.*	SALIX	100	8 (1-15)
S	shrub birch	*Betula glandulosa*	BEGL	60	10 (0-25)
S	bog birch	*Betula nana*	BENA	60	6 (0-15)
G	Bigelow's sedge	*Carex bigelowii*	CABI5	80	20 (0-60)
G	tussock cottongrass	*Eriophorum vaginatum*	ERVA4	80	15 (0-30)
F	cloudberry	*Rubus chamaemorus*	RUCH	80	2 (0-5)
B	stairstep moss	*Hylocomium splendens*	HYSP70	100	25 (3-70)
B	Sphagnum moss	*Sphagnum spp.*	SPHAG2	100	10 (0.1-20)
B	Schreber's big red stem moss	*Pleurozium schreberi*	PLSC70	60	5 (0-10)
L	reindeer lichen	*Cladina spp.*	CLADI3	100	4 (0.1-9)
L	cup lichen	*Cladonia spp.*	CLADO3	100	3 (0.1-7)

This dataset comes from five sample plots. The plots occur across the survey area and are independent of one another.

Values for tall, medium, regenerative, and stunted tree strata are used to calculate mean canopy cover and range values. Regenerative trees are not considered part of the overstory canopy.

Plant functional group classifications—T = trees, S = shrubs, G = graminoids, F = forbs, B = bryophytes, and L = lichens.

Canopy cover data is rounded, except trace (0.1 percent) cover. Data ranging from 1 to 9 percent cover is rounded to the nearest integer. Data ranging from 10 to 100 percent cover is rounded to the nearest factor of 5.

Figure 9. Canopy cover table for community 1.1.

The reference plant community is characterized as a needleleaf woodland primarily composed of black spruce. Tree age was highly variable, which may be due in part to patchy low-intensity fire events. Tree cover primarily occurs in the stunted tree stratum (less than 15 feet tall; mature). Occasional live deciduous trees, primarily resin birch (*Betula neoalaskana*), are in the tree canopy, but most have been replaced by spruce. The soil surface is covered primarily with herbaceous litter, bryophytes, and lichen. Commonly observed understory species include bog Labrador tea, bog blueberry, lingonberry, bog birch, shrub birch, Bigelow's sedge, tussock cottongrass, splendid feathermoss, and Sphagnum moss. The understory vegetative strata that characterize this community are bryophytes, low shrubs (between 8 and 36 inches in height), and medium graminoids (between 4 and 24 inches). Black spruce were sampled for diameter at breast height (dbh), height, and age at dbh (6 trees total). The mean dbh of black spruce is 2.8 inches (ranging from 1.9 to 4.0), the mean height is 17 feet (ranging from 13 to 24 feet), and the mean age is 76 years (ranging from 50 to 111 years).

Dominant plant species

- black spruce (*Picea mariana*), tree
- marsh Labrador tea (*Ledum palustre ssp. decumbens*), shrub
- bog Labrador tea (*Ledum groenlandicum*), shrub
- bog blueberry (*Vaccinium uliginosum*), shrub
- lingonberry (*Vaccinium vitis-idaea*), shrub
- resin birch (*Betula glandulosa*), shrub
- dwarf birch (*Betula nana*), shrub
- Bigelow's sedge (*Carex bigelowii*), grass
- tussock cottongrass (*Eriophorum vaginatum*), grass
- cloudberry (*Rubus chamaemorus*), other herbaceous
- splendid feather moss (*Hylocomium splendens*), other herbaceous
- sphagnum (*Sphagnum*), other herbaceous
- Schreber's big red stem moss (*Pleurozium schreberi*), other herbaceous
- reindeer lichen (*Cladina*), other herbaceous
- cup lichen (*Cladonia*), other herbaceous

Community 1.2
Shrub birch-Labrador tea / Bigelow's sedge-tussock cottongrass

Figure 10. Typical plant community associated with community 1.2.

Community Phase 1.2 Canopy Cover Table

Vegetation information is provided as a frequency (percent) and mean canopy cover (percent) of the most dominant and ecologically relevant species for this community phase. Canopy cover is represented as a mean with the range in parentheses.

Plant group	Common name	Scientific name	USDA plant code	Frequency (percent)	Mean canopy cover (percent)
T	black spruce	*Picea mariana*	PIMA	100	8 (1-10)
T	resin birch	*Betula neoalaskana*	BENE4	75	2 (0-4)
S	Labrador tea	*Ledum spp.*	LEPAD	100	40 (0.1-80)
S	shrub birch	*Betula glandulosa*	BEGL	100	20 (1-50)
S	lingonberry	*Vaccinium vitis-idaea*	VAVI	100	10 (0.1-20)
S	bog blueberry	*Vaccinium uliginosum*	VAUL	100	5 (4-8)
S	bog birch	*Betula nana*	BENA	75	9 (0-15)
S	willow	*Salix spp.*	SALIX	50	15 (0-25)
S	bog rosemary	*Andromeda polifolia*	ANPO	50	2 (0-4)
S	small cranberry	*Vaccinium oxycoccos*	VAOX	50	1 (0-3)
G	tussock cottongrass	*Eriophorum vaginatum*	ERVA4	100	65 (10-90)
G	Bigelow's sedge	*Carex bigelowii*	CABI5	25	9 (0-35)
F	cloudberry	*Rubus chamaemorus*	RUCH	100	7 (0.1-20)
B	Polytrichum moss	*Polytrichum spp.*	POLYT5	100	3 (0.1-7)
B	Sphagnum moss	*Sphagnum spp.*	SPHAG2	75	25 (0-45)

This dataset includes data from four sample plots. The plots are distributed across the survey area and are independent of one another.

Values for tall, medium, regenerative, and stunted tree strata are used to calculate mean canopy cover and range values. Regenerative trees are not considered part of the overstory canopy.

Plant functional group classifications—T = trees, S = shrubs, G = graminoids, F = forbs, B = bryophytes, and L = lichens.

Canopy cover data is rounded, except trace (0.1 percent) cover. Data ranging from 1 to 9 percent cover is rounded to the nearest integer. Data ranging from 10 to 100 percent cover is rounded to the nearest factor of 5.

Figure 11. Canopy cover table for community 1.2.

Community 1.2 is in the early stage of fire-induced secondary succession for this ecological site (fig. 4). It is characterized as mixed shrub-sedge tussock bog. Seedlings of black spruce and resin birch are common but have limited cover. Commonly observed species include marsh Labrador tea (*Ledum palustre* ssp. decumbens), bog birch, shrub birch, lingonberry, bog blueberry, tussock cottongrass, Bigelow's sedge, cloudberry (*Rubus chamaemorus*), Polytrichum moss (Polytrichum spp.), and Sphagnum moss. The understory vegetative strata that characterize this community are low shrubs (between 8 and 36 inches in height), bryophytes, and medium graminoids (between 4 and 24 inches).

Dominant plant species

- black spruce (*Picea mariana*), tree
- resin birch (*Betula neoalaskana*), tree

- Labrador tea (*Ledum*), shrub
- resin birch (*Betula glandulosa*), shrub
- lingonberry (*Vaccinium vitis-idaea*), shrub
- bog blueberry (*Vaccinium uliginosum*), shrub
- dwarf birch (*Betula nana*), shrub
- willow (*Salix*), shrub
- bog rosemary (*Andromeda polifolia*), shrub
- small cranberry (*Vaccinium oxycoccos*), shrub
- tussock cottongrass (*Eriophorum vaginatum*), grass
- Bigelow's sedge (*Carex bigelowii*), grass
- cloudberry (*Rubus chamaemorus*), other herbaceous
- polytrichum moss (*Polytrichum*), other herbaceous
- sphagnum (*Sphagnum*), other herbaceous

Pathway 1.1a
Community 1.1 to 1.2

Black spruce / Bigelow's sedge-tussock cottongrass / Sphagnum moss

Shrub birch-Labrador tea / Bigelow's sedge-tussock cottongrass

Fire.

Pathway 1.2a
Community 1.2 to 1.1

Shrub birch-Labrador tea / Bigelow's sedge-tussock cottongrass

Black spruce / Bigelow's sedge-tussock cottongrass / Sphagnum moss

Time without fire.

Additional community tables

Table 5. Community 1.1 forest overstory composition

Common Name	Symbol	Scientific Name	Nativity	Height (M)	Canopy Cover (%)	Diameter (Cm)	Basal Area (Square M/Hectare)
Tree							
black spruce	PIMA	*Picea mariana*	Native	4–7.3	–	4.8–10.2	–

Inventory data references

NASIS User Site ID / Modal DataSet
08CS02601 F232XY201AK 1.1
08CS02604 F232XY201AK 1.1
08TC02101 F232XY201AK 1.1
2017AK290542 F232XY201AK 1.1
2017AK290914 F232XY201AK 1.1
08CS02501 F232XY201AK 1.2
08CS02801 F232XY201AK 1.2
08CS03901 F232XY201AK 1.2

Other references

Alaska Interagency Coordination Center (AICC). 2016. http://fire.ak.blm.gov/

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Approval

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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	05/11/2020
Approved by	Michael Margo
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:**