USDA Natural Resources Conservation Service

Ecological site XA232X01Y250
Boreal Woodland Gravelly Terraces Dry

Last updated: 5/18/2020
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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.

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 LRU—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 lowlands LRU.

Classification relationships

Yukon Flats Lowlands MLRA.

Ecological site concept

This ecological site is associated with somewhat excessively drained soils on the tread of gravelly stream terraces in the Yukon Flats Lowlands MLRA. Gravelly horizons occur at very shallow depth (0 to 10 inches). The depth of gravels and lack of a water table likely causes drought stress for plants. The soils associated with the reference plant community lack permafrost at depth. The reference state supports multiple plant communities related to a fire regime.

Reference plant community 1.1 is characterized as a needleleaf woodland (10 to 25 percent cover; Viereck et al. 1992) composed primarily of mature white spruce (Picea glauca). Tree cover primarily occurs in the medium tree stratum (15 to 40 feet in height). Commonly observed understory species include kinnikinnick (Arctostaphylos uva-ursi), purple reedgrass (Calamagrostis purpurascens), false toadflax (Geocaulon lividum), reindeer lichen (Cladina spp.), flavo lichen (Flavocetraria cucullata), and cup lichen (Cladonia spp.). The soil surface is primarily covered with lichen. The understory vegetative strata that characterize this community are foliose and fruticose lichens.

Associated sites

XA232X01Y222	**Boreal Graminoid Loamy Terrace Depressions** This ecological site is associated with closed depressions of stream terraces that support a reference state with multiple graminoid-dominant community phases. These depressions are considered closed because they are not associated with a flood regime and have limited, if any, groundwater flow or recharge. The presumed hydrological inputs for this ecological site are primarily thaw of the annual active soil layer and/or permafrost, snowmelt runoff, and precipitation. This hydrologic regime results in the development of sodic soil properties.
XA232X01Y202	**Boreal Forest Loamy Flood Plain Middle** This ecological site occurs on the middle flood plain of major tributaries in the Yukon Flats Lowlands MLRA. Flooding occurs occasionally (5 to 50 times in 100 years) for long durations of time (between 7 and 30 days). The reference plant community is characterized as a closed deciduous forest (60-100 percent cover; Viereck et al. 1992) primarily composed of mature balsam poplar (Populus balsamifera).
XA232X01Y204	**Boreal Forest Loamy Flood Plain High** This ecological site occurs on the high flood plain of major tributaries in the Yukon Flats Lowlands MLRA. Flooding occurs occasionally (5 to 50 times in 100 years) for brief durations of time (between 2 and 7 days). The reference plant community is characterized as an open needleleaf forest (25 to 60 percent cover) primarily composed of mature white spruce (Picea glauca).
XA232X01Y218	**Boreal Woodland Loamy Frozen Terraces** This ecological site is associated with wet soils on the tread of stream terraces in Yukon Flats Lowlands MLRA. Soils generally have permafrost at moderate depth (20 to 40 inches) and pond occasionally for long durations of time. The reference plant community is characterized as a needleleaf woodland (10 to 25 percent cover; Viereck et al. 1992) composed of black spruce (Picea mariana) and white spruce (Picea glauca).
XA232X01Y221	**Boreal Forest Loamy Terraces** This ecological site is associated with moderately well to well drained soils on the tread of stream terraces in the Yukon Flats Lowlands MLRA. Flooding frequency ranges from rare to none. The reference plant community is characterized as an open needleleaf forest (25 to 60 percent cover) primarily composed of mature white spruce (Picea glauca).
XA232X01Y262	**Boreal Woodland Gravelly Terraces** This ecological site is associated with wet soils on the tread of gravelly stream terraces in the lowlands region of the Yukon Flats Lowlands MLRA. Gravelly horizons range from very shallow to shallow depths (0 to 20 inches) and soils lack permafrost at depth. The pH of soil horizons commonly range from neutral to moderately alkaline, which leads to diverse species assemblages. The reference plant community phase is characterized as a needleleaf woodland (10 to 25 percent cover; Viereck et al. 1992) composed primarily of black spruce (Picea mariana) and white spruce (Picea glauca).
XA232X01Y205	**Boreal Grass Loamy Flood Plain Depressions** This ecological site is associated with depressions on flood plains in the Yukon Flats Lowlands MLRA. The reference state plant communities are associated with soils that both pond and flood. Ponding occurs occasionally (5 to 50 times in 100 years) for brief durations of time (between 2 and 7 days). Flooding occurs occasionally for brief durations of time. The reference plant community is characterized as open tall scrub (Viereck et al. 1992) and is primarily composed of willow (Salix spp.).

XA232X01Y206	**Boreal Scrub Loamy Frozen Flood Plain Depressions** This ecological site is associated with depressions on flood plains in the Yukon Flats Lowlands MLRA. The reference state plant communities are associated with soils that both pond and flood. Ponding occurs frequently (greater than 50 times in 100 years) for long durations of time (between 7 and 30 days). Flooding occurs occasionally (5 to 50 times in 100 years) for brief durations of time (between 2 and 7 days). The reference plant community is characterized as mesic graminoid herbaceous (Viereck et al. 1992) and is primarily composed of bluejoint (Calamagrostis canadensis).
XA232X01Y200	**Boreal Scrub Loamy Flood Plain Low** This ecological site is associated with the low flood plain of major tributaries in the Yukon Flats Lowlands MLRA. Flooding occurs frequently (greater than 50 times in 100 years) for long durations of time (between 7 and 30 days). The reference plant community is characterized as closed tall scrub (greater than 75 percent shrub cover; Viereck et al. 1992) primarily composed of a mixture of willow (Salix spp.) and alder (Alder spp.).

Similar sites

XA232X01Y262	**Boreal Woodland Gravelly Terraces** XA232X01Y262 occurs on wet and gravelly stream terrace soils. XA232X01Y262 tends to have greater cover of black spruce (Picea mariana) and less cover of foliose and fruticose lichen.
XA232X01Y224	**Boreal Woodland Sandy Terrace Rises** XA232X01Y224 is associated with well to somewhat excessively drained soils on sand dunes. When comparing both reference phases, XA232X01Y224 tends to have greater cover of ericaceous dwarf shrubs and less cover of foliose and fruticose lichens.

Table 1. Dominant plant species

Tree	(1) *Picea glauca*
Shrub	(1) *Saxifraga tricuspidata*
Herbaceous	(1) *Cladina* (2) *Flavocetraria cucullata*

Legacy ID

F232XY250AK

Physiographic features

This ecological site is associated with gravelly stream terraces, which primarily occur north of the Yukon River in this MLRA. Current or previously glacial fed rivers that flow out of the southern foothills of the Brooks Range created large gravelly terraces north of the Yukon River (e.g. Sheenjek, Christian, and Chandalar Rivers).These coarsely textured soils are unfavorable for permafrost aggradation in the profile. Nonglacial rivers, like those that flow out of the Yukon-Tanana Plateau (e.g., Birch and Beaver Creeks), are associated with stream terraces that have loamy substrata. These loamy soils are generally favorable for permafrost aggradation and these stream terraces support a different suite of ecological sites.

The depth of gravelly horizons and influences of a water table are important site factors that differentiate ecological sites on these gravelly stream terraces . Soils with gravelly horizons near the soil surface tend to be associated with woodlands (e.g. XA232X01Y250 and XA232X01Y262), while soils with deeper gravelly horizons tend to be associated with forests (e.g., XA232X01Y219 and XA232X01Y221). This ecological site is associated with somewhat excessively drained soils that have gravelly horizons at very shallow depths. Ecological site XA232X01Y262 has gravelly horizons at very shallow to shallow depths but has wet soils.

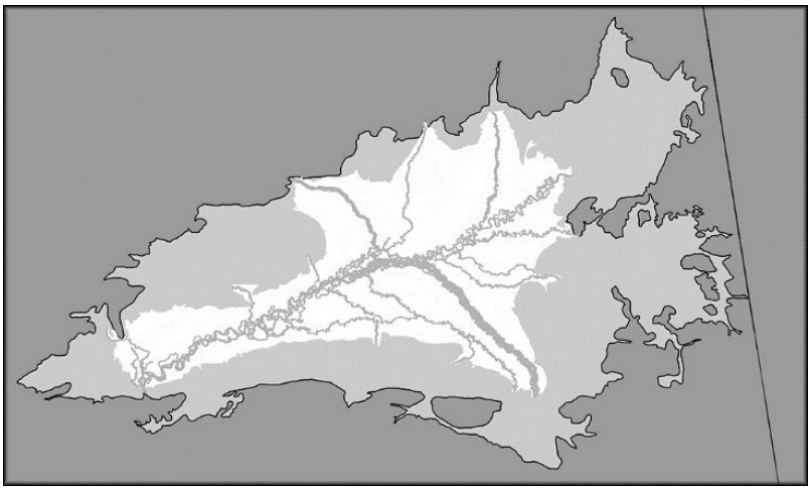


Figure 1. Lowlands region (white) and marginal uplands region (light gray) of the Yukon Flats Lowlands MLRA.

Figure 2. Sheenjek River, flood plain, and terraces. The white lichen patches in the aerial image on the terraces adjacent to the river are associated with F232XY250AK.

Table 2. Representative physiographic features

Geomorphic position, terraces	(1) Tread
Landforms	(1) Alluvial plain > Stream terrace (2) Alluvial plain > Flood plain
Flooding frequency	None to occasional
Ponding frequency	None
Elevation	114–305 m
Slope	0–5%
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).

All of the tabular data below was calculated from the PRISM dataset (1971-2000) and is specific to the Lowlands LRU in the Yukon Flats Lowlands MLRA.

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)	203-330 mm
Frost-free period (average)	75 days
Freeze-free period (average)	
Precipitation total (average)	254 mm

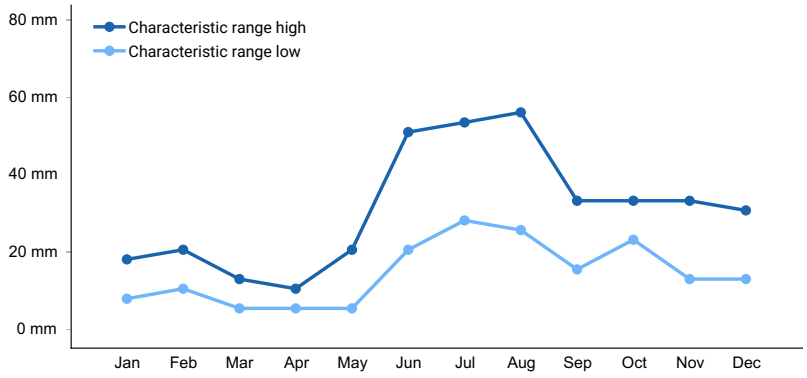


Figure 3. Monthly precipitation range

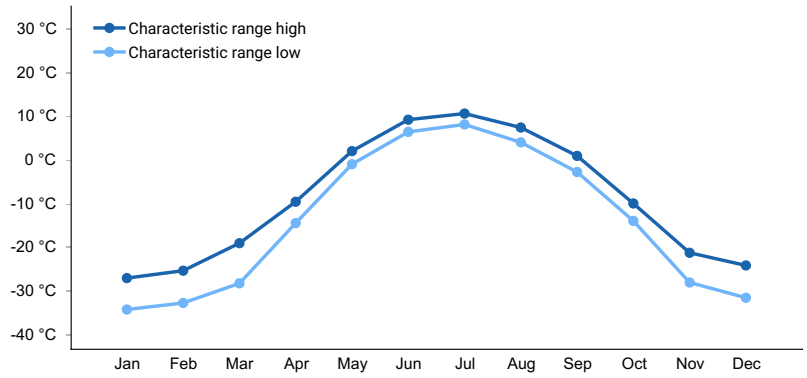


Figure 4. Monthly minimum temperature range

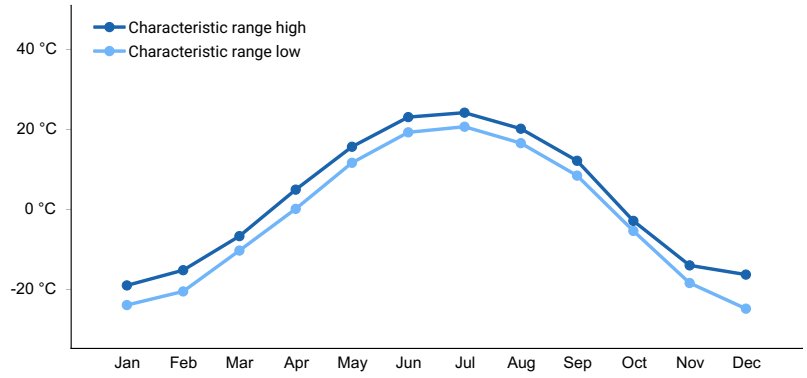


Figure 5. Monthly maximum temperature range

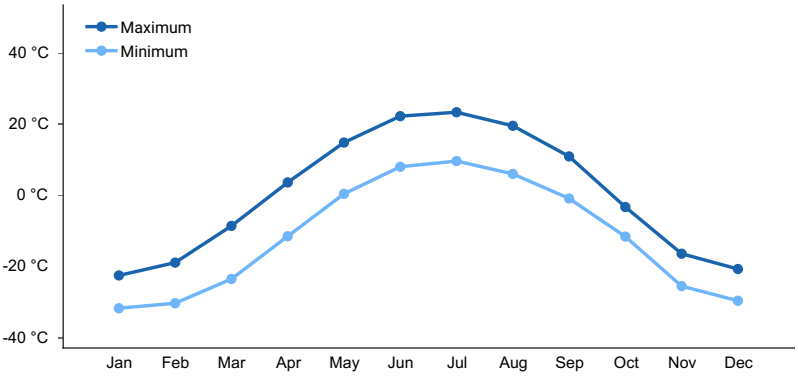


Figure 6. Monthly average minimum and maximum temperature

Influencing water features

Soil features

Correlated soil components for the Yukon Flats Area, Alaska soil survey (AK685): Venetie; Venetie, occasionally flooded.

Figure 7. Typical soil profile associated with Venetie soil component.

Figure 8. Typical soil profile associated with Venetie soil component.

Table 4. Representative soil features

Parent material	(1) Alluvium
Family particle size	(1) Sandy-skeletal
Drainage class	Somewhat excessively drained

Soil depth	203 cm

Ecological dynamics

Drought stress

Associated soils are somewhat excessively drained. Through field observation, soils are thought to have limited groundwater connectivity making precipitation the major hydrologic input for associated plant communities. After a rain event, available water is rapidly drained through the porous sandy and gravelly soil profile. During most of the growing season, depth to internal free water in the profile is thought to be below the rooting zone of plants, which results in drought stress.

For this ecological site, drought stress impacts the structure and composition of plant communities. For instance, white spruce are commonly observed but often appear stunted. Many species that are common on terraces across the Yukon Flats Lowlands MLRA are uncommon or do not occur in these droughty areas (e.g. *Salix glauca*, *Mertensia paniculata*, *Hylocomium splendens*, and *Ptilidium ciliare*). Certain species that are uncommon on terraces across the Yukon Flats Lowlands MLRA are abundant in these droughty areas (e.g. kinnikinnick, three toothed saxifrage, and flavo lichen).

Fire

In the Yukon Flats Lowlands MLRA, fire is a common and natural event that has a significant effect on the vegetation dynamics across the landscape. A typical fire event in areas associated with this ecological site will reset plant succession. For this ecological site to progress from the pioneering fire stage to the reference plant community, data suggest that 100 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 this MLRA, fire is considered 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 undisturbed areas within the burn perimeters. Ten of the fire events were attributed to human activities (affecting a total of 2,864 acres), but the majority 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 Interior Alaska 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 warm and somewhat excessively drained, the typical fire scenario for this ecological site is considered to be a high-severity burn.

Field data suggest that the forested community will burn and that fire events will cause a transition to the pioneering stage of fire succession. This pioneering stage is a mix of species that regenerate in place (e.g., subterranean root crowns for willow and rhizomes for graminoids) and/or from wind-dispersed seeds or spores that colonize exposed mineral soil (e.g., quaking aspen [*Populus tremuloides*] and Ceratodon moss [*Ceratodon purpureus*]). The pioneering stage of fire succession is composed primarily of tree seedlings, forbs, grasses, and weedy bryophytes. Drought-tolerant shrub species and tree seedlings continue to colonize and grow in recently burned areas until these species become dominant marking the transition to the early stage of fire succession (community 1.3). In the absence of fire, tree species continue to become more dominant in the stand. The later stages of succession have an overstory that is a mix of immature deciduous and needleleaf trees (late fire sere) or is primarily mature needleleaf trees (community 1.1). While thought to exist, the pioneering and late stage of fire succession were not documented during field work.

Flooding

This ecological site occurs on gravelly stream terraces that no longer flood (Venetie soils) and on areas directly adjacent to or in close proximity of floodplains (Venetie, occasionally flooded soils). While both associated soils are similar (having very shallow depth to gravelly horizons), sites proximal to floodplains tend to have a scoured surface likely due to flooding. This scouring results in gravels occurring even closer to the soil surface.

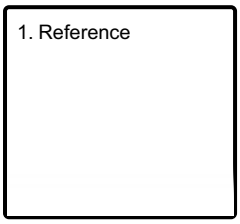
After fieldwork and data analysis, it was determined that these two soil types appear to support plant communities that respond similarly to fire and have similar kinds and amounts of vegetation in the reference state. As a result, the soil components were correlated into one ecological site.

Other Observations

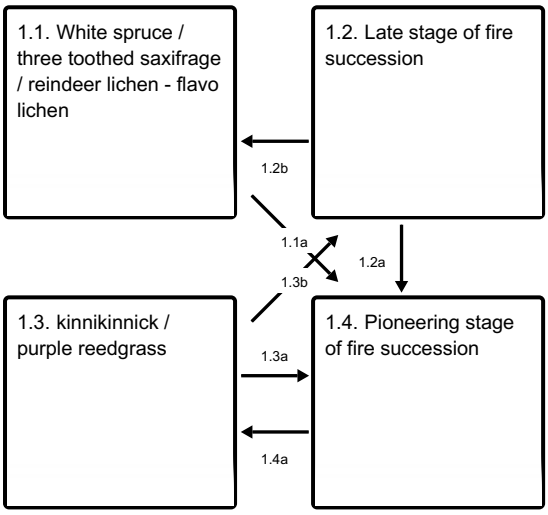
Animal use (browsing and grazing) of this ecological site primarily consists of caribou grazing of lichen.

State and transition model

Ecosystem states



State 1 submodel, plant communities



State 1
Reference

Figure 9. Aerial image of a stream terrace in the Yukon Flats Lowlands MLRA. This ecological site occurs on stream terraces in this MLRA.

The reference state has two documented plant communities, which 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. 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 names are from the USDA PLANTS database. All plant communities in the report are characterized using the Alaska Vegetation Classification (Viereck et al. 1992).

Community 1.1
White spruce / three toothed saxifrage / reindeer lichen - flavo lichen

Figure 10. Typical plant community associated with community 1.1.

Community Phase 1.1 Canopy Cover Table

Vegetation data is aggregated from all sample plots for this community phase. The data is provided as frequency (percent) and mean canopy cover (percent) of the most dominant and ecologically relevant species. 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	white spruce	*Picea glauca*	PIGL	100	20 (9-30)
S	kinnikinnick	*Arctostaphylos uva-ursi*	ARUV	75	3 (0-7)
S	prickly rose	*Rosa acicularis*	ROAC	75	1 (0-1)
G	purple reedgrass	*Calamagrostis purpurascens*	CAPU	75	5 (0-15)
F	three toothed saxifrage	*Saxifraga tricuspidata*	SATR5	75	6 (0-15)
F	false toadflax	*Geocaulon lividum*	GELI2	75	1 (0-2)
L	reindeer lichen	*Cladina spp.*	CLADI3	100	30 (5-55)
L	flavo lichen	*Flavocetraria cucullata*	FLCU	75	35 (0-65)
L	cup lichen	*Cladonia spp.*	CLADO3	75	9 (0-15)

This dataset comes 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, 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 1.1.

Reference plant community 1.1 is characterized as a needleleaf woodland (Viereck et al. 1992) primarily composed of mature white spruce. White spruce tree cover is primarily in the medium tree stratum (between 15 and 40 feet in height). Occasional live deciduous trees, dominantly quaking aspen, are in the tree canopy. The soil surface is

covered primarily with foliose and fruticose lichen. Commonly observed understory species include kinnikinnick, purple reedgrass, false toadflax, a reindeer lichen (primarily C. rangiferina, C. stellaris, and C. mitis), flavo lichen, and cup lichen. The understory vegetative strata that characterize this community are foliose and fruticose lichens. White spruce trees were sampled for diameter at breast height (dbh), height, and age at dbh (nine trees). In addition, stand basal area and white spruce site index was determined for each sample plot. The mean dbh is 6.5 inches (ranging from 2.3 to 16.0 inches), the mean height is 38 feet (ranging from 16 to 77 feet), and the mean age is 92 years (ranging from 50 to 131 years). The mean stand basal area is 47 (ranging from 13 to 98), while site index is 40 (ranging from 26 to 50).

Dominant plant species

- white spruce (*Picea glauca*), tree
- kinnikinnick (*Arctostaphylos uva-ursi*), shrub
- prickly rose (*Rosa acicularis*), shrub
- purple reedgrass (*Calamagrostis purpurascens*), grass
- false toadflax (*Geocaulon lividum*), other herbaceous
- three toothed saxifrage (*Saxifraga tricuspidata*), other herbaceous
- (*Flavocetraria cucullata*), other herbaceous
- greygreen reindeer lichen (*Cladina rangiferina*), other herbaceous
- star reindeer lichen (*Cladina stellaris*), other herbaceous
- reindeer lichen (*Cladina mitis*), other herbaceous
- reindeer lichen (*Cladina*), other herbaceous
- cup lichen (*Cladonia*), other herbaceous

Community 1.2
Late stage of fire succession

This is an undocumented plant community but is thought to exist in the Yukon Flats Lowlands MLRA. This theoretical plant community is thought to be both be forested and have an overstory that is a mix of immature deciduous and needleleaf trees.

Community 1.3
kinnikinnick / purple reedgrass

Figure 12. Typical plant community associated with community 1.3.

Community Phase 1.3 Canopy Cover Table

Vegetation data is aggregated from all sample plots for this community phase. The data is provided as frequency (percent) and mean canopy cover (percent) of the most dominant and ecologically relevant species. 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	white spruce	*Picea glauca*	PIGL	100	4 (4)
T	quaking aspen	*Populus tremuloides*	POTR5	100	1 (1)
S	kinnikinnick	*Arctostaphylos uva-ursi*	ARUV	100	65 (65)
G	purple reedgrass	*Calamagrostis purpurascens*	CAPU	100	15 (15)
G	Pumpelly's brome	*Bromus inermis* ssp. *pumpellianus*	BRINP5	100	3 (3)
F	false toadflax	*Geocaulon lividum*	GELI2	100	0.1 (0.1)
F	American pasqueflower	*Pulsatilla patens*	PUPA5	100	0.1 (0.1)
F	three toothed saxifrage	*Saxifraga tricuspidata*	SATR5	100	0.1 (0.1)
L	flavo lichen	*Flavocetraria cucullata*	FLCU	100	3 (3)

This dataset comes from one 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, 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 13. Canopy cover table for community 1.3.

Plant community 1.3 is in the early stage of fire-induced secondary succession for this ecological site. This plant community is characterized as ericaceous dwarf scrub (Viereck et al. 1992). Tree cover is primarily in the regenerative tree stratum (less than 15 feet in height). The most common species are quaking aspen and white spruce. The soil surface is primarily covered with herbaceous litter and woody debris. Commonly observed understory species include kinnikinnick, purple reedgrass, Pumpelly's brome (*Bromus inermis* ssp. pumpellianus), and flavo lichen. The understory vegetative strata that characterize this community are dwarf shrubs (less than 8 inches in height) and medium graminoids (between 4 and 24 inches in height).

Dominant plant species

- white spruce (*Picea glauca*), tree
- quaking aspen (*Populus tremuloides*), tree
- kinnikinnick (*Arctostaphylos uva-ursi*), shrub
- purple reedgrass (*Calamagrostis purpurascens*), grass
- Pumpelly's brome (*Bromus inermis ssp. pumpellianus var. pumpellianus*), grass
- false toadflax (*Geocaulon lividum*), other herbaceous
- eastern pasqueflower (*Pulsatilla patens*), other herbaceous
- three toothed saxifrage (*Saxifraga tricuspidata*), other herbaceous
- (*Flavocetraria cucullata*), other herbaceous

Table 5. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	0%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%

Litter	100%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	0%

Community 1.4
Pioneering stage of fire succession

This is an undocumented plant community but is thought to exist in the Yukon Flats Lowlands MLRA. This theoretical plant community is thought to be composed primarily of tree seedlings, forbs, grasses, and weedy bryophytes.

Pathway 1.1a
Community 1.1 to 1.4

Fire.

Pathway 1.2b
Community 1.2 to 1.1

Time without fire.

Pathway 1.2a
Community 1.2 to 1.4

Fire.

Pathway 1.3b
Community 1.3 to 1.2

Time without fire.

Pathway 1.3a
Community 1.3 to 1.4

Fire.

Pathway 1.4a
Community 1.4 to 1.3

Time without fire.

Additional community tables

Table 6. Community 1.1 forest overstory composition

Common Name	Symbol	Scientific Name	Nativity	Height (M)	Canopy Cover (%)	Diameter (Cm)	Basal Area (Square M/Hectare)
Tree							
white spruce	PIGL	*Picea glauca*	Native	4.9–23.5	9–30	5.8–40.6	–

Inventory data references

NASIS User Site ID / Modal Datasets
11TD08903 community 1.1
12NR03103 community 1.1
13BS00101 community 1.1
2015AK290990 community 1.1
14AK2903069 community 1.3

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Contributors

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Approval

Michael Margo, 5/18/2020

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:**

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11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

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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:

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13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

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14. **Average percent litter cover (%) and depth (in):**

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15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

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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:**

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17. **Perennial plant reproductive capability:**
