

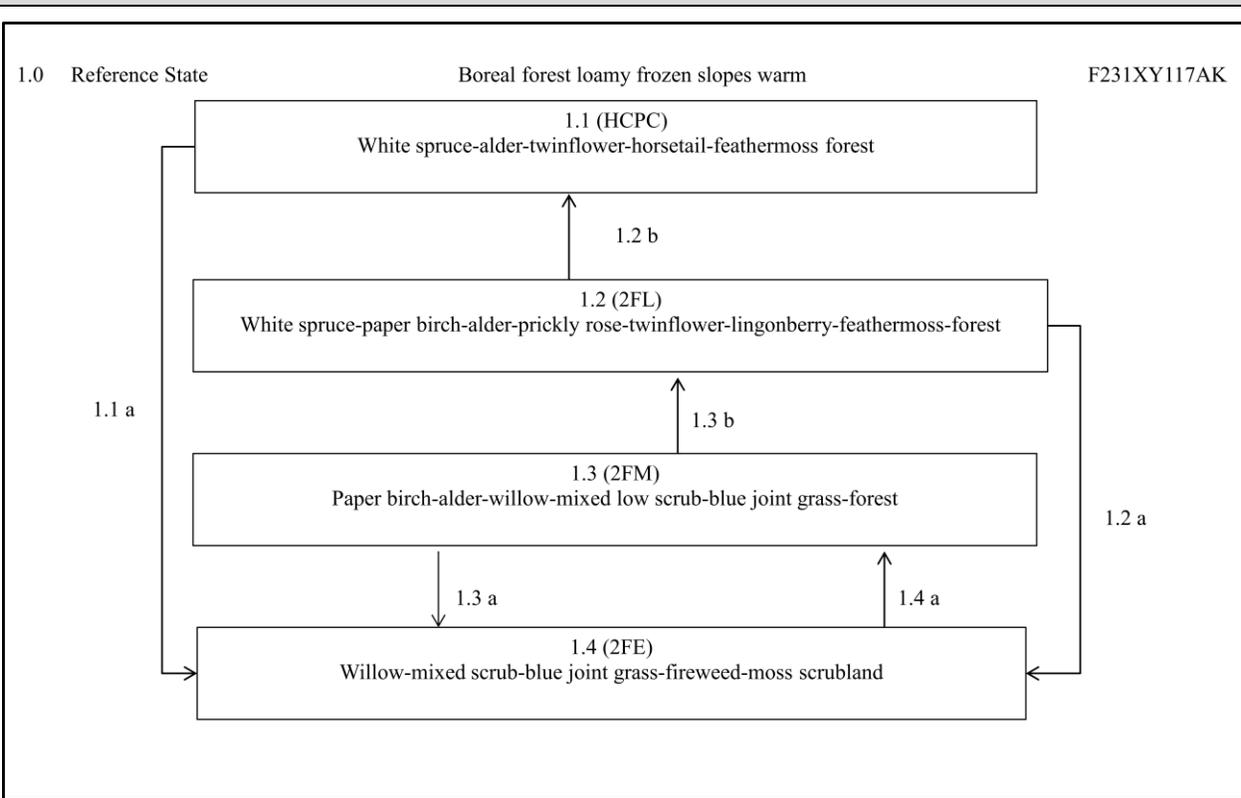
Ecological Site Description ID:	F231XY117AK
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Ecological Dynamics of the Site:

This boreal ecological site occurred on south facing hill and mountain backslopes (i.e. slopes ranged from 7-32%). Soils were loamy and had permafrost. The climax phase community was characterized as a white spruce forest with a thick feathermoss mat. Surface organic layer for climax phase community ranged from 14-27 cm. Ecological site F231XY182AK was similar vegetatively but that ecological site tended to occur on steeper terrain, soils were rockier, and permafrost was not present at climax phase. For community phase 1.1, soils were classified as haplorthels and were composed of organic matter over loamy colluvium.

Fire was a disturbance regime that resulted in 4 documented phases. Fire is a natural and typically unmanaged disturbance regime. The typical fire return interval for coniferous forests of interior Alaska is approximately 100 years. This ecological site was considered to typically have high-severity fire events.

State and Transition Diagram:



State ID Number:	1	State Name:	Reference
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State Narrative:

Phases within the reference state were grouped on the structure and dominance of deciduous and coniferous trees which was believed to directly relate to time since last fire event and severity of burn.

A high-severity fire regime was considered to be the typical fire disturbance for this ecological site. In a high-severity fire, large proportions of the organic mat are consumed and mineral soils will typically be exposed. Permafrost often drops out of the soil profile and the sites become drier. While many pre-fire species likely regenerate after fire, conditions are suitable for the establishment and growth of species with wind-blown seed (e.g. paper birch, fireweed, willow).

The fire return interval plays a large role in the structure of the observed forest. Longer fire return intervals favors development of community phases 1.1, while shorter fire return intervals favor development of community phases 1.2 and 1.3

Tall trees are defined as trees growing >40' in height, medium trees are defined as growing 15-40' in height, while stunted and regenerative trees are defined as growing less than 15' in height. Tall shrubs are defined to grow greater than 10' in height, medium shrubs are defined to grow 3-10' in height, low shrubs are defined to grow 8" – 3' in height, and dwarf shrubs are defined to grow less than 8" in height.

Photo 1.1



Community Phase	1.1	Community	White Spruce-Alder-Twinflower-Horsetail-Feathermoss
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Number:		Phase Name:	Forest
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Community Phase Narrative:

The majority of tree cover occurred in the tall tree stratum (total mature tree cover ~45%). While *Picea glauca* was the dominate tree species, *Betula neoalaskana* was also occasionally observed. The majority of shrub cover occurred in the tall and dwarf strata (total shrub cover was ~60%). Commonly observed shrubs included *Alnus viridis*, *Linnaea borealis*, and *Arctostaphylos rubra*. Forbs were a major vegetative component (25% cover) and commonly observed species included *Equisetum sp.* and *Geocaulon lividum*. Graminoids and lichens were minor vegetative components. Moss formed an extensive mat (~85% cover) primarily composed of *Hylocomium splendens*. This phase had 3 observations.

Community Pathways

Pathway Number	Pathway Name & Description
1. 1 a	Fire. For this ecological site, community phase 1.1 had the longest fire return interval.

Photo 1.2



Community Phase Number:	1.2	Community Phase Name:	White Spruce-Paper Birch-Alder-Prickly Rose-Twinflower-Lingonberry-Feathermoss-Forest
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Community Phase Narrative:

The majority of tree cover occurred in the tall and medium tree strata (total mature tree cover ~50%). The dominant tree species were a mixture of *Picea glauca* and *Betula neoalaskana*. While *Picea mariana* was often observed, this species was considered minor. Shrub cover was evenly split between tall, low, and dwarf shrubs (total shrub cover ~50%). Commonly observed shrubs included *Alnus viridis*, *Rosa acicularis*, *Ledum palustre*, *Linnaea borealis*, and *Vaccinium vitis-idaea*. Forbs were commonly observed (~30% cover) and common species included *Equisetum sp.*, *Cornus canadensis*, and *Geocaulon lividum*. Graminoids and lichens were minor vegetative components. Moss formed an extensive mat (~50% cover) primarily composed of *Hylocomium splendens*. This phase had 6 observations.

Community Pathways

Pathway Number	Pathway Name & Description
1.2 a	Fire.
1.2 b	<p>Normal time and growth without fire. As a result, paper birch will eventually be replaced by white spruce that would result in a community assemblage resembling community phase 1.1. The fire return interval was presumed to be shorter than community phase 1.1 but longer than community phase 1.3.</p> <p>Paper birch was commonly observed as standing dead trees, which was presumed to signal that the community was transitioning into a white spruce dominant phase.</p>

Photo 1.3



Community Phase Number:

1.3

Community Phase Name:

Paper Birch-Alder-Willow-Mixed Low Scrub-Blue Joint Grass-Forest

Community Phase Narrative:

The majority of tree cover occurred in the tall and medium tree strata (total mature tree cover ~50%). The dominant tree species was *Betula neolaskana* but *Picea glauca* was also observed. Shrubs were least abundant in this phase (~25%). Commonly observed species included *Alnus viridis*, *Salix bebbiana*, and *Rosa acicularis*. While forb cover remained constant (~25%), graminoid cover increased (35%). Commonly observed forbs were *Equisetum sp.*, *Mertensia paniculata*, and *Cornus canadensis*, while a commonly observed graminoid was *Calamagrostis canadensis*. Lichen and moss were minor vegetative components.

Community Pathways

Pathway Number

Pathway Name & Description

1.3 a

Fire.

Stands of paper birch are less likely to burn and fire is less likely to spread when compared to stands dominated by white spruce. Regardless, stands of paper birch were observed to burn within the study area. If community phase 1.3

	burned, the resulting community would resemble community phase 1.4.
1.3 b	Normal time and growth without fire. White spruce will grow and become a codominate with paper birch, which would result in a community resembling community phase 1.2. Fire return interval was presumed to be shorter than community phase 1.2 but longer than community phase 1.4.

Photo 1.4	n/a		
Community Phase Number:	1.4	Community Phase Name:	Willow-mixed scrub-blue joint grass-fireweed-moss scrubland
Community Phase Narrative:			
This phase was observed in the field but not sampled.			

Community Pathways	
Pathway Number	Pathway Name & Description
1.4 a	n/a