

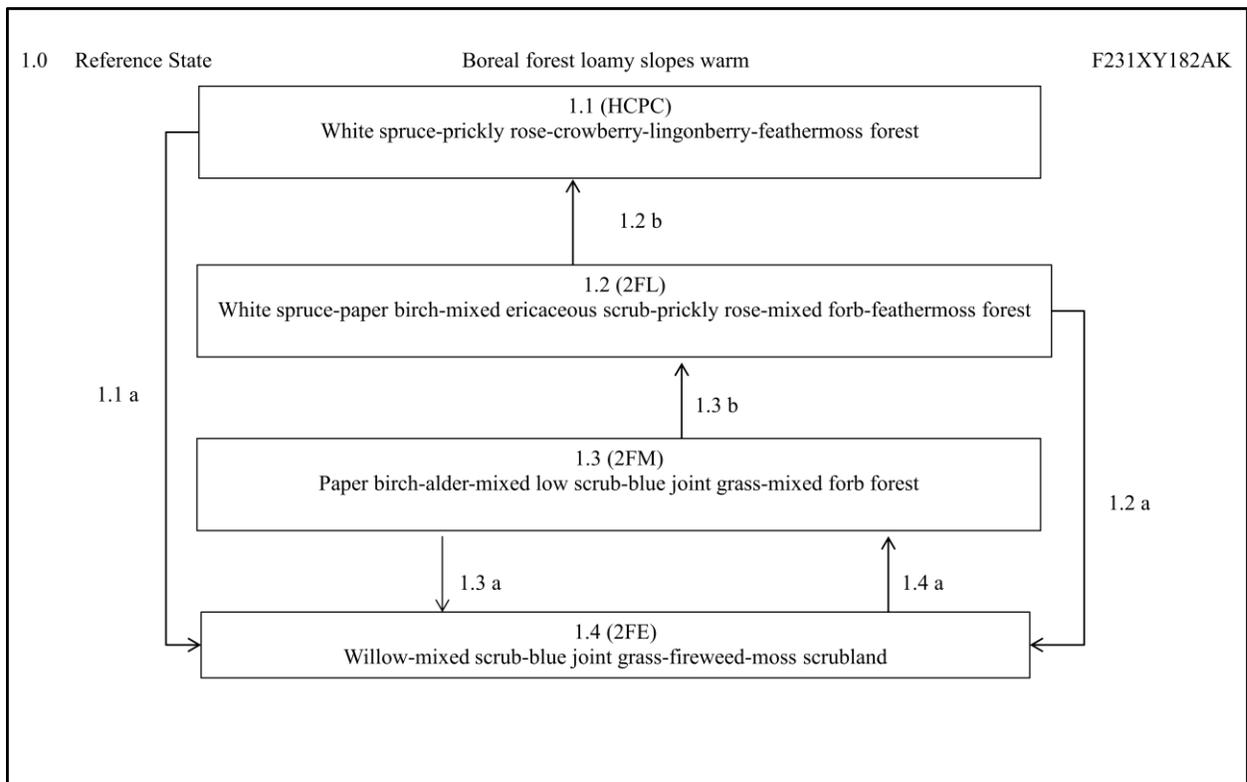
Ecological Site Description ID:	F231XY182AK
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Ecological Dynamics of the Site:

This boreal ecological site occurred on south facing hill and mountain backslopes (i.e. slopes were typically > 25%). For community phase 1.1, soils were classified as haplocryepts and were composed of loess over gravelly colluvium. 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 6-23 cm. Ecological site F231XY117AK was similar vegetatively but ecological site 182 tended to occur on less steep slopes, forests were less productive, soils had more gravel content, and permafrost was generally not observed at the climax phase.

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.

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.

Based on field observations, 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. 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 Number:

1.1

Community Phase Name:

White Spruce-Prickly Rose-Crowberry-Lingonberry-Feathermoss Forest

Community Phase Narrative:

The majority of tree cover occurred in the tall tree stratum (total mature tree cover ~50%). While *Picea glauca* was the dominate tree species, *Betula neolaskana* was also occasionally observed. The majority of shrub cover occurred in the dwarf stratum (total shrub cover was 45%). Commonly observed shrubs include *Rosa acicularis*, *Empetrum nigrum*, and *Vaccinium vitis-idaea*. While forbs were minor components (~10% cover), *Geocaulon lividum* and *Mertensia paniculata* were commonly

observed. Graminoids and lichens were minor vegetative components. Moss formed an extensive ground cover primarily composed of *Hylocomium splendens* and *Pleurozium schreberi* (~75% total moss cover). This phase had 7 observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.1 a	Fire. For this phase, white spruce was the dominate tree species. For this ecological site, this phase had the longest fire return interval.

Photo 1.2



Community Phase Number:

1.2

Community Phase Name:

White Spruce-Paper Birch-Mixed Ericaceous Scrub-Prickly Rose-Mixed Forb-Feathermoss Forest

Community Phase Narrative:

The majority of tree cover occurred in the tall and medium tree stratum (total mature tree cover was ~40%). Both *Betula neolaskana* and *Picea glauca* were dominant tree species. Shrubs primarily occurred in the low and dwarf stratum (total shrub cover ~75%). Commonly observed shrubs included *Alnus viridis*, *Rosa acicularis*, *Vaccinium vitis-idaea*, and *Ledum palustre*. When compared to phase 1.1, forbs had greater plot coverage (~25% cover). Commonly observed forbs were *Geocaulon lividum* and *Mertensia paniculata*. Graminoids and lichens were minor vegetative components. While less abundant when compared to phase 1.1, moss still formed an extensive ground cover (~40%). This phase had 12 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-Mixed Low Scrub-Blue Joint Grass-Mixed Forb Forest
Community Phase Narrative:			
<p>The majority of tree cover occurred in the medium tree stratum (total mature tree cover was ~55%). <i>Betula neolaskana</i> was the dominant mature tree species. Shrub cover was evenly split between the tall, low, and dwarf stratum (total shrub cover was ~50%). Commonly observed shrubs include <i>Alnus viridis</i>, <i>Rosa acicularis</i>, <i>Vaccinium vitis-idaea</i>, and <i>Linnaea borealis</i>. Forbs and graminoids combined</p>			

for ~25% cover. A commonly observed graminoid was *Calamagrostis canadensis*, while a commonly observed forb was *Mertensia paniculata*. Moss and lichen were minor vegetative components in part due to litter debris from deciduous forest. This phase had 7 observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.3 a	<p>Fire.</p> <p>Stands of paper birch are less likely to burn and fire is less likely to spread when compared to stands dominated by 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.</p>
1.3 b	<p>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.</p>

Photo 1.4			
Community Phase Number:	1.4	Community Phase Name:	Willow-Mixed Scrub-Blue Joint Grass-Fireweed-Moss Scrubland
Community Phase Narrative:			

Standing charred trees were commonly observed. Seedlings of *Betula neoalaskana*, *Picea glauca*, and *Populus tremuloides* were commonly observed (combined for ~15% cover). Shrub cover occurred in medium and low strata. Commonly observed species included *Alnus viridis*, *Salix sp.*, and *Rosa acicularis*. Phase 1.4 had the greatest combined forb and graminoid cover (~95%). The most common forbs were *Chamerion angustifolium* and *Mertensia paniculata*, while the most common graminoid was *Calamagrostis canadensis*. This phase had 2 observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.4 a	Normal time and growth without fire. The paper birch present within the sampled sites will mature and eventually resemble community phase 1.3. While this phase may burn, the resulting community would likely resemble community phase 1.4.