

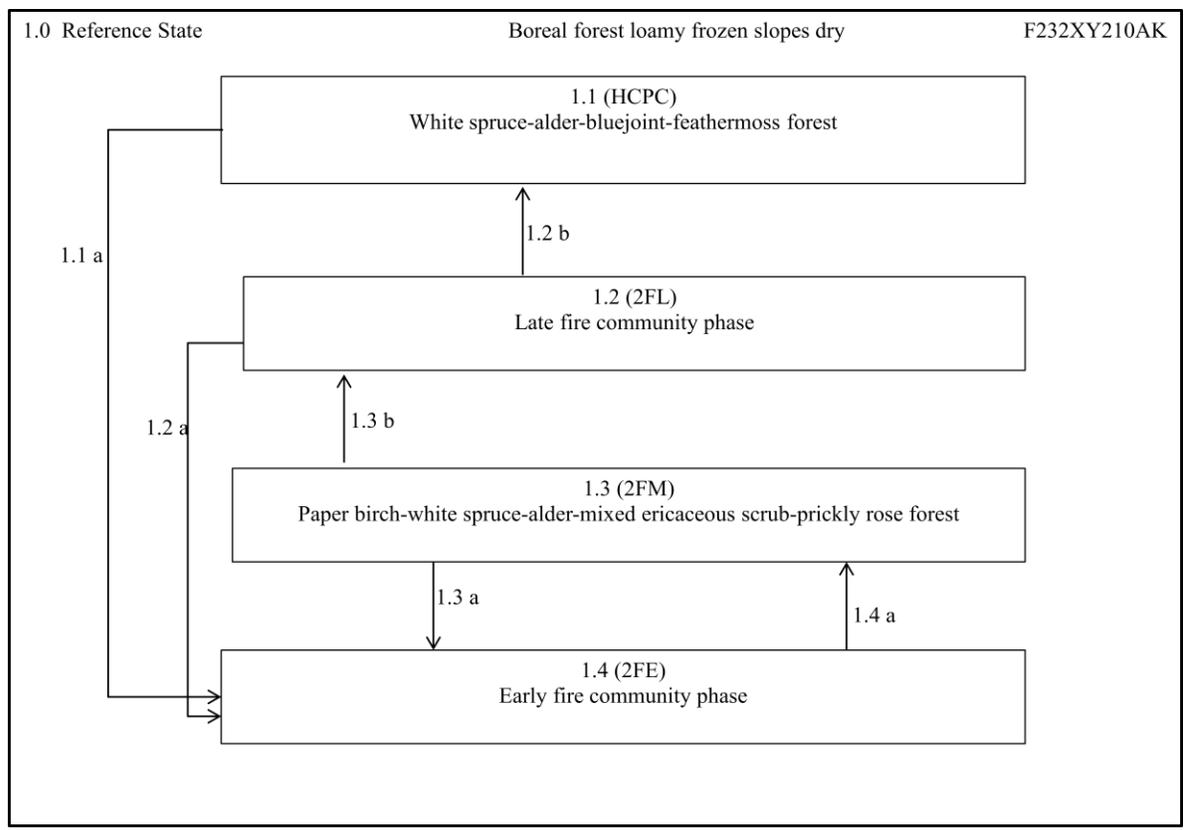
Ecological Site Description ID:	F232XY210AK
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Ecological Dynamics of the Site:

This boreal ecological site occurs on steeper sloping escarpments adjacent to loess plains. Average slope was 41% for sampled locations and ranged from 11-70%. This ecological site was observed on slopes with a northern and eastern aspect. Fire resulted in two documented phases. As sites progress from community phase 1.4 to 1.1, surface organic matter increases and permafrost develops and/or rises in the soil profile. For community phase 1.1, soils were classified as haplorthels and were composed of organic matter over loamy colluvium.

Fire is a natural and typically unmanaged disturbance regime. The typical fire return interval for coniferous forests of interior Alaska is approximately 100 years. Due to limited sampling, only two community phases were developed for this ecological site. Since this ecological site has an associated fire regime, there are assumed to be several undocumented community phases making the state-and-transition model incomplete.

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 severity

of burn and time since last fire event.

Due to the steepness and dominance of a white spruce forest, 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 Number:

1.1

Community Phase Name:

White spruce-alder-bluejoint-feathermoss forest

Community Phase Narrative:

Picea glauca is the dominant tree species and cover primarily occurs in the tall tree stratum. While *Betula neolaskana* and *Picea mariana* were observed, both tree species occurred at lesser densities (total mature tree cover ~40%; average age of white spruce was 147). Shrub cover primarily occurred in the tall, low, and dwarf strata (total shrub cover ~40%) and species commonly observed are *Alnus viridis* ssp. *fruticosa*, *Ribes triste*, *Rosa acicularis*, *Linnaea borealis*, and *Vaccinium vitis-idaea*. Graminoids (~50% cover) and forbs (~50% cover) were abundant and the most commonly observed species were *Calamagrostis canadensis*, *Mertensia paniculata*, and various *Equisetum* sp. Moss (70%) formed an extensive ground cover and the most abundant species were *Hylocomium splendens* and *Pleurozium schreberi*. This phase had 2 observations.

Community Pathways

Pathway Number	Pathway Name & Description
1.1 a	Fire. Large portion of organic mat is consumed (i.e. average depth 26 cm) representing a high-severity fire scenario.

Photo 1.2	n/a		
Community Phase Number:	1.2	Community Phase Name:	Late fire community phase
Community Phase Narrative:			
This community phase is theoretical but based on field observations.			

Community Pathways	
Pathway Number	Pathway Name & Description
1.2 a	Fire.
1.2 b	Normal time and growth without fire. White spruce forest matures and largely replaces paper birch stand. Phase 1.2 is thought to have a shorter fire return interval than phase 1.1 and a longer fire return interval than phase 1.3.

Photo 1.3



Community Phase Number:	1.3	Community Phase Name:	Paper birch-white spruce-alder-mixed ericaceous scrub-prickly rose forest
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Community Phase Narrative:

Betula neolaskana is the dominant tree species and cover primarily occurs in the tall and medium tree stratum. *Picea glauca* occurred at lesser densities in the tall, medium, and regenerative tree strata (total mature tree cover ~70%; average age of white spruce was 48). Shrub cover was split between the tall, medium, low, and dwarf strata (total shrub cover ~60%) and species commonly observed are *Alnus viridis* ssp. *fruticosa*, *Ribes triste*, *Rosa acicularis*, *Ledum groenlandicum*, *Spiraea stevenii*, and *Vaccinium vitis-idaea*. Graminoids (~20% cover) and forbs (~30% cover) were abundant and the most commonly observed species were *Calamagrostis canadensis* and *Mertensia paniculata*. Moss (30% cover) and leaf litter (~30% cover) were the primary components of ground cover. The most commonly observed moss species was *Hylocomium splendens*. This phase had 4 observations.

Community Pathways

Pathway Number	Pathway Name & Description
1.3 a	Fire. Due to limited organic material (i.e. average depth 7 cm), a fire event would likely consume a large proportion of organic mat leading towards a high-severity fire scenario.
1.3 b	Normal time and growth without fire. White spruce mature and begin to dominate canopy outcompeting paper birch. Phase 1.3 is thought to have a

	shorter fire return interval than phase 1.2 and a longer fire return interval than phase 1.4.
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Photo 1.4	n/a		
Community Phase Number:	1.4	Community Phase Name:	Early fire community phase
Community Phase Narrative:			
This community phase is theoretical but based on field observations.			

Community Pathways	
Pathway Number	Pathway Name & Description
1.4 a	Normal time and growth without fire. Paper birch mature and turn into forest.