

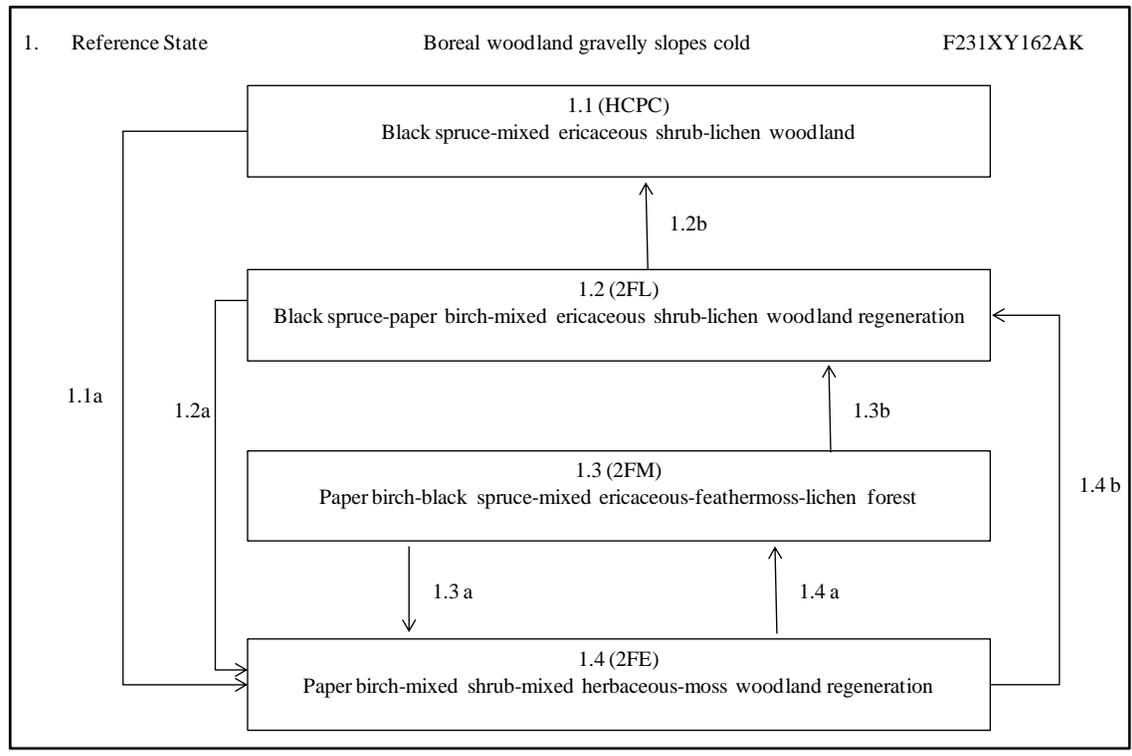
Ecological Site Description ID:	F231XY162AK
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Ecological Dynamics of the Site:

This boreal ecological site occurred on summits, shoulders, and backslopes of mountains and hills at all aspects often on convex positions. Given the wide array in landscape position for this ecological site, slope varied substantially (i.e. 1-60%). Soils were rocky and lacked permafrost. Climax phase community typically had a minimal organic horizon (i.e. < 15 cm). For community phase 1.1, soils were classified as haplocrypts and were composed of organic matter over loess and/or gravelly colluvium. Climax phase community was characterized as black spruce woodland with ericaceous shrub and lichen understory.

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. For this ecological site, high-severity fire events are more typical than low-severity fire events. Low-severity and high-severity fire events appear to cause differences in the depth of organic material on the soil surface, present vegetation, and potential vegetation.

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.

Due in part to the lack of permafrost and thin organic mat, sites tend to be well-drained and likely burn hot during a fire event. Field observations support that typical disturbance is a high-intensity fire regime. 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:

Black Spruce-Mixed Ericaceous Shrub-Lichen Woodland

Community Phase Narrative:

The majority of tree cover was medium and stunted *Picea mariana* (total mature tree cover was ~20%). While black spruce was the dominant tree species, *Picea glauca*, *Populus tremuloides* and *Betula*

neolaskana were also observed. The shrub canopy primarily occurred in the low and dwarf stratum (total shrub cover was ~60%). Common shrubs included *Ledum palustre*, *Empetrum nigrum*, *Vaccinium uliginosum*, and *Vaccinium vitis-idaea*. Forbs and graminoids were minor vegetative components. Lichen diversity was high and formed an extensive ground cover (~50% cover). Moss was less abundant than lichen but both *Hylocomium splendens* and *Pleurozium schreberi* were commonly observed. This phase had 10 observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.1a	Fire. Community phase 1.1 has the longest fire return interval.

Photo 1.2



Community Phase Number:

1.2

Community Phase Name:

Black Spruce-Paper Birch-Mixed Ericaceous Shrub-Lichen Woodland Regeneration

Community Phase Narrative:

Tree cover was primarily split between the medium, stunted, and regenerative tree stratum (~15% mature cover and 15% seedling cover). The dominant tree species were *Picea mariana* and *Betula neolaskana*, but *Picea glauca* and *Populus tremuloides* were also occasionally observed. Shrubs were evenly mixed between the low and dwarf shrub stratum (total shrub cover was ~60%). Commonly observed shrubs were *Ledum palustre*, *Vaccinium uliginosum*, *Empetrum nigrum*, and *Vaccinium vitis-idaea*. Forbs and graminoids were minor vegetative components. Lichen diversity was high and formed an abundant ground cover (~45% cover) with moss (~35%). This phase had four

observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.2 a	Fire.
1.2 b	Normal time and growth without fire. Observations of deciduous trees become less frequent and black spruce seedlings mature and form a black spruce woodland. The fire return interval was presumed to be shorter than phase 1.1 but longer than phase 1.4.

Photo 1.3



Community Phase Number:

1.3

Community Phase Name:

Paper birch-black spruce-mixed ericaceous shrub-feathermoss-lichen forest

Community Phase Narrative:

Tree cover was primarily split between the medium and regenerative tree strata. The dominant medium sized trees were *Populus tremuloides* and *Betula neolaskana*, while the dominant regenerative tree was *Picea mariana*. Shrubs were the dominant general life form in the understory (total shrub cover was ~45%). Commonly observed shrubs include *Vaccinium vitis-idaea*, *Vaccinium uliginosum*, and *Rosa acicularis*. Graminoids and forbs were minor vegetative components. Lichen and moss

were evenly distributed as ground cover (combined cover was ~40%). This phase had 7 observations.

Community Pathways	
Pathway Number	Pathway Name & Description
1.3 a	Fire.
1.3 b	Normal time and growth without fire. Deciduous trees begin to fall out of the system and black spruce seedling grow and begin to dominate community. The fire return interval was presumed to be shorter than phase 1.2 but longer than phase 1.4.

Photo 1.4			
Community Phase Number:	1.4	Community Phase Name:	Paper birch-Mixed Herbaceous-Moss Woodland Regeneration
Community Phase Narrative:			
<p>The majority of tree cover was a mixture of regenerating <i>Populus tremuloides</i> and <i>Betula neolaskana</i>. When compared to all other phases, forb, graminoid, and lichen cover was reduced. Common shrubs were <i>Salix sp.</i>, a common graminoid was <i>Calamagrostis canadensis</i>, and a common forb was <i>Chamerion angustifolium</i>. Moss was an abundant ground cover (~40%). This phase had 5 observations.</p>			

Community Pathways	
Pathway Number	Pathway Name & Description
1.4 a	Normal time and growth without fire. High-severity burn scenario. Deciduous trees continue to outpace growth of black spruce and eventually dominate stand.
1.4 b	Normal time and growth without fire. A transition that bypasses phase 1.3 was believed to occur for this ecological site, which might result from a low-severity fire scenario. Site conditions may favor growth of black spruce and disfavor dominance of deciduous trees. This scenario may occur on sites where fire disturbances do not expose large swaths of mineral soils.