

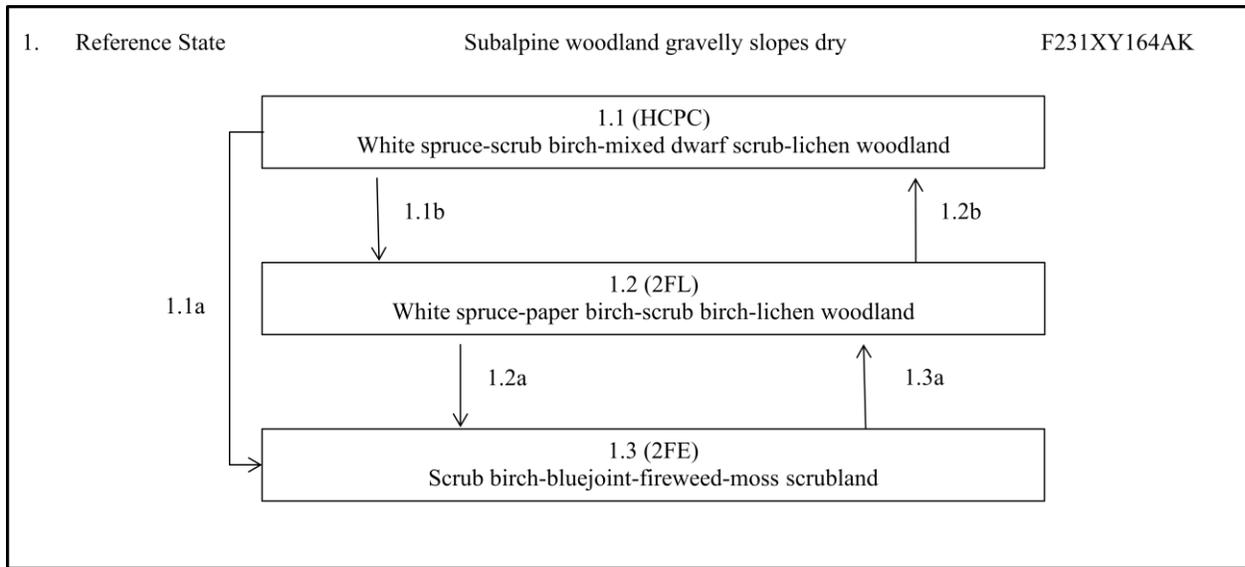
Ecological Site Description ID:	F231XY164AK
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Ecological Dynamics of the Site:

This subalpine ecological site was observed on the summit, shoulder, and backslopes of mountains at high elevations (i.e. slopes ranged from 2-57%; elevation ranged from 800-1000 meters). The slope shape of this ecological site was generally convex leading to drier soils at least when compared to ecological sites occurring on more concave slope positions (e.g. F231XY140AK). While tree cover was observed in this subalpine ecological sites, cover in the climax phase was generally < 25% and deemed limited in large part due to the cold micro-climate. Soils were rocky and exposed rock fragments were often observed in this ecological site. For community phase 1.1, soils were classified as dystrocryepts or haplocryepts and were composed of organic matter over gravelly colluvium. Communities were similar to F231XY139AK but had a greater abundance of tree cover, which might result from this ecological site occurring at slightly lower elevations.

Fire was a documented disturbance regime resulting in three observed phases. The typical fire return interval for coniferous forests of interior Alaska is approximately 100 years. For this ecological site, high-severity fire events are believed to be 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: For the climax phase, dominant vegetation was a mixture of trees, shrubs, and lichen. Tree cover was sporadic primarily occurring in the medium tree stratum. Sites were considered woodlands (i.e. 10-25% tree cover).
From field observations, fire completely removed the tree canopy. As early

phase vegetation was a mixture of broadleaf tree regeneration and herbaceous plants, disturbance was likely a high-severity fire event. This high-severity fire likely consumed much of the organic mat exposing mineral soils. While many pre-fire species likely regenerate post-fire, conditions are suitable for the establishment and growth of species with wind-blown seed (e.g. paper birch, fireweed, willow).

In interior Alaska, the dominant sub-alpine tree species is *Picea glauca*. As *Picea glauca* establishes after fire from off-site seed sources, fire return intervals likely play a substantial role in controlling the abundance of white spruce cover at any given location. Shorter fire return intervals will likely result in less long-term coniferous tree cover than areas with longer fire return intervals.

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. 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

Photo 1.1



Community Phase Number:

1.1

Community Phase Name:

White spruce-scrub birch-mixed dwarf scrub-lichen woodland

Community Phase Narrative:

The tree canopy was primarily medium sized trees with trace amount of regenerating, stunted, and tall trees. While *Betula neoalaskana* and *Picea mariana* were present, the most common tree species was *Picea glauca* (total mature tree cover ~15%). For this phase, *Picea glauca* averaged 79 years of age (i.e. ranging from 31-147 years). The most abundant medium shrubs were *Betula glandulosa* and

Betula occidentalis, while the most abundant dwarf shrubs were *Vaccinium vitis-idaea* and *Empetrum nigrum*. Both graminoids and forbs were a minor vegetative component of this phase. Lichen cover was nearly twice as high as moss cover (i.e. primarily fruticose/foliose lichen and feathermoss). While lichen diversity was high (i.e. 13 species) no individual species had abundant distributions at this ecological site. Common species included: *Stereocaulon tomentosum*, *Cladina sp.*, and *Cladonia sp.*

Community Pathways	
Pathway Number	Pathway Name & Description
1.1 a	High-intensity fire. Climax sites were generally well-drained and had thin organic layers (i.e. < 15 cm). This high-intensity fire likely consumed much of the organic mat exposing mineral soils.
1.1 b	Low-intensity fire or spot fire. While not observed for this ecological site, a low-intensity or spot fire would likely resemble a late fire phase community. Under a low-severity burn scenario, some shrubs and graminoids can quickly recolonize and dominate a site using below ground root reserves that are not consumed in the fire event.

Photo 1.2			
Community Phase Number:	1.2	Community Phase Name:	White spruce-paper birch-scrub birch-lichen woodland
Community Phase Narrative:			

The majority of the tree canopy was a mixture of medium and regenerating *Betula neolaskana* and *Picea glauca*. For this phase, *Picea glauca* averaged 69 years of age (i.e. ranging from 27-101 years). Shrubs were abundant typically exceeding 50% cover in sites and were evenly divided into three strata: medium, low, and dwarf shrubs. The most abundant medium shrubs were *Betula glandulosa* and *Betula occidentalis*, the most abundant low shrubs were *Betula glandulosa* and *Vaccinium uliginosum*, and the most abundant dwarf shrubs were *Vaccinium vitis-idaea* and *Empetrum nigrum*. Both graminoids and forbs were a minor vegetative component of this phase. Lichen cover was nearly twice as high as moss cover (i.e. primarily fruticose/foliose lichen and feathermoss). While lichen diversity was high (i.e. 19 species) no individual species had abundant distributions at this ecological site. Common species included: *Stereocaulon tomentosum*, *Cladina sp.*, and *Flavocetraria cucullata*. 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 disturbance. The late and climax phases were split apart in large part due to the typical size/age of trees and presence of broadleaf tree species. With time, broadleaf tree species will likely fall out of dominance in the community and be replaced by <i>Picea glauca</i> . The fire return interval was presumed to be shorter than phase 1.1 but longer than phase 1.3.

Photo 1.3



Community Phase Number:	1.3	Community Phase Name:	Scrub birch-bluejoint-fireweed-moss scrubland
Community Phase Narrative:			
<p>The tree canopy consisted of regenerating <i>Betula neolaskana</i> but occurred at low densities. When compared to the climax and late fire phase, shrub cover was limited and primarily occurred in the medium shrub stratum. The dominant medium shrub was <i>Betula glandulosa</i>. When compared to the climax and late fire phase, graminoid and forb cover was high. The most abundant graminoid was <i>Calamagrostis canadensis</i> and most abundant forb <i>Chamerion angustifolium</i>. Fire appeared to greatly reduce overall lichen cover and increased moss cover. This phase was limited to one observation.</p>			

Community Pathways	
Pathway Number	Pathway Name & Description
1.3 a	Normal time and growth without fire. Paper birch and spruce develop into a mixed woodland.